AC-DC Power Supplies Bus Converter · Power Module Type















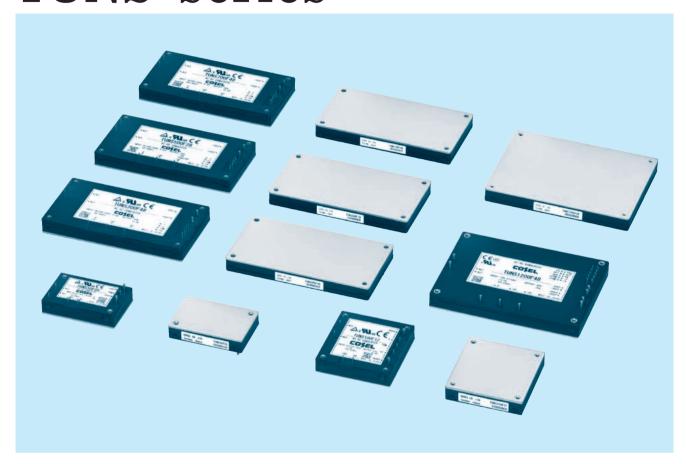








TUNS-series



Feature

AC-DC Power Module Type Converter

Harmonic attenuator (Complies with IEC61000-3-2 class A)

Thin and small size

Built-in overcurrent, overvoltage and thermal protection circuits

Mounting hole (M3 tapped)

<TUNS50F/100F/300F/500F/700F>

Universal input 85 - 264VAC

Peak current (TUNS500F)

<TUNS1200F>

Wide input 85 - 305VAC

For medical electric equipment

Constant current regulation

Output voltage can be varied to near 0V

Parallel operation possible

CE marking

Low voltage directive RoHS Directive

Safety Approval

UL60950-1, C-UL, EN62368-1 (TUNS50F/100F/300F/500F/700F) UL62368-1, C-UL, EN62368-1 (TUNS1200F) ANSI/AAMI ES60601-1, EN60601-1 3rd (TUNS1200F)

5-year warranty

Optional parts

Heat sink

50 F 05



①Series name ②Single output ③Output wattage ④Universal Input

⑤Output voltage

(a) Optional
T: with Mounting hole
(\$\phi 3.4 \text{ thru})

- *Avoid short circuit between +BC and -BC. It may cause the failure of inside components.
- *Keep TRM open, if output voltage adjustment is not necessary.

MODEL	TUNS50F05	TUNS50F12	TUNS50F24
MAX OUTPUT WATTAGE[W]	50.0	50.4	50.4
DC OUTPUT	5V 10A	12V 4.2A	24V 2.1A

REMOTE ON/OFF Not provided		MODEL		TUNS50F05	TUNS50F12	TUNS50F24			
CHRENT A		VOLTAGE[V]		AC85 - 264 1 ϕ (Refer to "Derating")					
PREQUENCY IX SO/60 (47 - 63)		CUDDENTIAL	ACIN 100V	0.67typ (lo=100%)					
POWER FACTOR (0=10%) ACM 100V 79typ 8.4typ 8.4	0	CORRENT[A]	ACIN 200V	0.35typ (lo=100%)					
PPICIENCY * s ACM 2009 altyp 84typ 84typ 86typ		FREQUENCY[Hz]		50/60 (47 - 63)					
POWER FACTOR (0=100%) ACN 100% O-95typ	INDUT	EFFICIENCY[9/]	ACIN 100V	79typ	83typ	84typ			
POWER FACTOR (Io-100%) ACM 200V D.901yp	INFOI	EFFICIENCT[%]	ACIN 200V	81typ	84typ	86typ			
INRUSH CURRENT Limited by external components (Thermistor)		DOWED EACTOR (In-100%)	ACIN 100V	0.95typ					
LEAKAGE CURRENT[ma] 0.75max (ACIN 240V 60Hz, Io=100%, According to IEC62368-1)		FOWER PACTOR (10=100 /6)	ACIN 200V	21	90typ				
VOLTAGE[V] 5		INRUSH CURRENT		, , , , , , , , , , , , , , , , , , , ,					
CURRENT[A]			T[mA]	,	;	_			
LINE REGULATION[mV] 10max 24max 48max 48ma		VOLTAGE[V]		5					
COLIFICATION TOLIFICATION TOL				10		2.1			
OUTPUT RIPPLE[mVp-p]				10max	24max	48max			
OUTPUT 40 to 0.0 st. 120 max 150 max 150 max 150 max 380 max RIPPLE NOISE[mVp-p] 0b st00 st. 120 max 280 max 380 max 150 max TEMPERATURE REGULATION[m] 0b st00 st. 20 max 200 max 200 max 250 max TEMPERATURE REGULATION[m] 0b st00 st. 20 max 120 max 480 max 360 max 480 max DRIFT[mV] s2 20 max 120 max 240 max 480 max TEMPERATURE REGULATION[m] s2 20 max 120 max 240 max 480 max TEMPERATURE REGULATION[m] s2 20 max 120 max 240 max 480 max TEMPERATURE REGULATION[m] s2 20 max 120 max 240 max 480 max TEMPERATURE REGULATION[m] s2 20 max 40 max 90 max TEMPERATURE REGULATION[m] s2 20 max 40 max 90 max TEMPERATURE REGULATION[m] s6 30 max 11 monax 240 max 240 max		LOAD REGULATION							
OUTPUT HEREBULATION[MI] 10 m/s 120 max 150 max									
OUTPUT RIPPLE NOISE[mVp-p] 0b+10C = 1 20max 150max 200max 200max 250max 460max		RIPPLE[mVp-p]	-40 to 0°C *1	120max		150max			
RIPPLE NOISE[mVp-p]			0 to 15% Load * 1	200max	280max	380max			
RIPPLE NOISE[mVp-p]	OUTPUT		0 to +100℃*1	120max	150max	150max			
TEMPERATURE REGULATION m V	0011 01	RIPPLE NOISE[mVp-p]	-40 to 0°C *1	200max	200max	250max			
TEMPERATURE REGULATION(INV) 40 to +100° 100 max 240 max 480 max 90 max			0 to 15% Load * 1	280max		460max			
DRIFT[mV] 40 to 100 to 100 max 240 max 480 max 480 max 400 max 240 max 400 max 90 m		TEMPERATURE REGULATION(mV)		50max	120max	240max			
OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		TERRI ETITATORE REGOLETION (IIIT)	-40 to +100℃			480max			
OUTPUT VOLTAGE ADJUSIMENT RANGELY 4.50 - 6.00 10.80 - 13.20 21.60 - 26.40		DRIFT[mV]	*2			90max			
PROTECTION CIRCUIT AND OTHERS PROTECTION CIRCUIT AND OTHERS		OUTPUT VOLTAGE ADJUSTMEN	IT RANGE[V]						
OVERCURRENT PROTECTION OVERVOLTAGE PROTEC									
PROTECTION CIRCUIT AND CIRCUIT				1 1 1		23.62 - 24.38			
CIRCUIT AND OTHERS OVERVOLINGE PROTECTION(V) 6.30 - 7.00 13.90 - 16.35 27.50 - 32.40 REMOTE SENSING Not provided INPUT-OUTPUT AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C) INPUT-FG AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C) OUTPUT-FG AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (20±15°C) OPERATING TEMP, HUMID.AND ALTITUDE -40 to +100°C (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max STORAGE TEMP, HUMID.AND ALTITUDE -40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max VIBRATION 10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis IMPACT 196.1m/s² (20G), 11ms, once each along X, Y and Z axis SAFETY AND AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN62368-1 NOSE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3 CASE SIZE/WEIGHT 58.4×12.7×37.3mm [2.3×0.5×1.47 inches] (W×H×D) / 80g max <	DROTECTION			· · · · · · · · · · · · · · · · · · ·	, , , , , , , , , , , , , , , , , , , ,				
Not provided REMOTE SENSING Not provided REMOTE ON/OFF Not provided			CTION[V]		13.90 - 16.35	27.60 - 32.40			
INPUT-OUTPUT AC3,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)	OTHERS			· · · · · · · · · · · · · · · · · · ·					
INPUT-FG AC2,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20±15°C)				· · ·					
OUTPUT-FG AC500V 1minute, Cutoff current = 100mA, DC500V 50M \(\Omega\$ min (20±15°C) \) PENVIRONMENT ENVIRONMENT ENVIR				· · · · · · · · · · · · · · · · · · ·	, ,				
ENVIRONMENT ENVIR	ISOLATION								
STORAGETEMP,HUMID.AND ALTITUDE -40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max VIBRATION 10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis IMPACT 196.1m/s² (20G), 11ms, once each along X, Y and Z axis SAFETY AND AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN62368-1 NOISE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3 CASE SIZE/WEIGHT 58.4×12.7×37.3mm [2.3×0.5×1.47 inches] (W×H×D) / 80g max COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)									
VIBRATION 10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis IMPACT 196.1m/s² (20G), 11ms, once each along X, Y and Z axis SAFETY AND AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN62368-1 NOISE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3 CASE SIZE/WEIGHT COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)		. , .		1 // ()/ ()/ / / / /					
IMPACT 196.1m/s² (20G), 11ms, once each along X, Y and Z axis AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN62368-1 NOISE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3 CASE SIZE/WEIGHT COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)	ENVIRONMENT	· · · · · · · · · · · · · · · · · · ·	ALTITUDE						
SAFETY AND AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN62368-1 NOSE REGULATIONS HARMONIC ATTENUATOR COMPlies with IEC61000-3-2 (Class A) *3 CASE SIZE/WEIGHT COOLING METHOD CONDUCTION Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)				, , , , ,		∠ axis			
NOISE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3 CASE SIZE/WEIGHT 58.4×12.7×37.3mm [2.3×0.5×1.47 inches] (W×H×D) / 80g max COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)									
OTHERS CASE SIZE/WEIGHT 58.4×12.7×37.3mm [2.3×0.5×1.47 inches] (W×H×D) / 80g max COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)	-			, , , , , , , , , , , , , , , , , , , ,					
COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)	NUISE REGULATIONS			•					
COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)	OTHERS			L L	, , ,				
				0,0	n from the aluminum base plate to the	attached heat sink)			

- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output. Please contact us about another class.

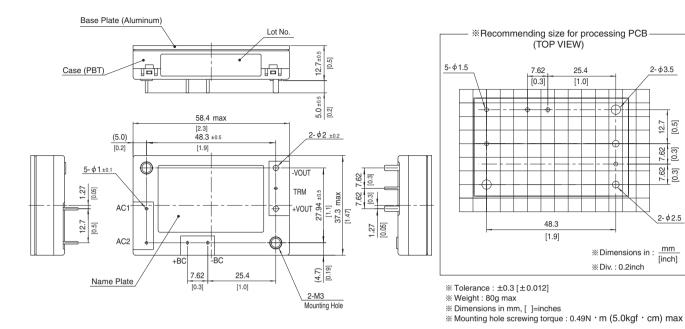


12.7

7.62

7.62

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TUNS100F

100 F 05



- ①Series name ②Single output ③Output wattage ④Universal Input

- ⑤Output voltage
- (a) Optional
 T: with Mounting hole
 (\$\phi 3.4 \text{ thru})

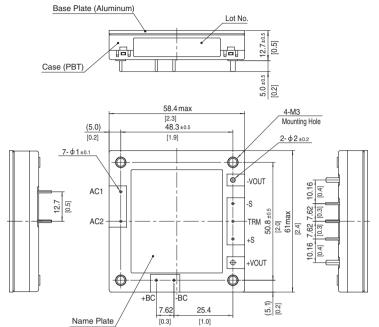
- *Avoid short circuit between +BC and -BC. It may cause the failure of inside components.
- *Keep TRM open, if output voltage adjustment is not necessary.
- *If remote sensing is not necessary, connect between +Vout & +S and between -Vout & -S.

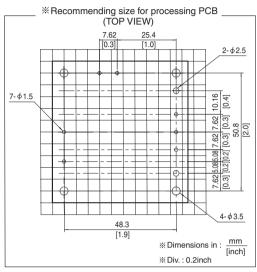
MODEL	TUNS100F05	TUNS100F12	TUNS100F24
MAX OUTPUT WATTAGE[W]	100.0	100.8	100.8
DC OUTPUT	5V 20A	12V 8.4A	24V 4.2A

	MODEL		TUNS100F05	TUNS100F12	TUNS100F24			
	VOLTAGE[V]		AC85 - 264 1 ϕ (Refer to "Derating")					
	OUDDENTIAL	ACIN 100V	1.3typ (lo=100%)					
COI	CURRENT[A]	ACIN 200V	0.7typ (lo=100%)					
	FREQUENCY[Hz]		50/60 (47 - 63)					
INPUT	EFFICIENCY[0/]	ACIN 100V	82typ	83typ	84typ			
INPUT	EFFICIENCY[%]	ACIN 200V	85typ	85typ	86typ			
	DOWER FACTOR (In 1000)	ACIN 100V	0.95typ					
	POWER FACTOR (Io=100%)	ACIN 200V	0.90typ					
	INRUSH CURRENT	,	Limited by external components (The	rmistor)				
	LEAKAGE CURREN	T[mA]	0.75max (ACIN 240V 60Hz, lo=100%	, According to IEC62368-1)				
	VOLTAGE[V]		5	12	24			
	CURRENT[A]		20	8.4	4.2			
	LINE REGULATION[mV]	10max	24max	48max			
	LOAD REGULATION	[mV]	10max	24max	48max			
		0 to +100℃*1	80max	120max	120max			
	RIPPLE[mVp-p]	-40 to 0°C *1	120max	150max	150max			
		0 to 15% Load * 1	160max	240max	240max			
ОИТРИТ		0 to +100℃*1	120max	150max	150max			
OUTPUT	RIPPLE NOISE[mVp-p]	-40 to 0°C *1	200max	200max	250max			
		0 to 15% Load * 1	240max	300max	300max			
	TEMPERATURE REGULATION[mV]	0 to +65°C	50max	120max	240max			
	TEMPERATURE REGULATION[IIIV]	-40 to +100℃	100max	240max	480max			
	DRIFT[mV]	*2	20max	40max	90max			
	OUTPUT VOLTAGE ADJUSTMEN	IT DANCEIVI	Fixed (TRM pin open), adjustable by	external resistor or external signal				
	OUTPUT VOLTAGE ADJUSTIMEN	II NANGE[V]	4.50 - 6.00	10.80 - 13.20	21.60 - 26.40			
	OUTPUT VOLTAGE SET	TING[V]	4.97 - 5.13	11.91 - 12.29	23.62 - 24.38			
	OVERCURRENT PROT	ECTION	Works over 105% of rating and recover	ers automatically				
PROTECTION CIRCUIT AND	OVERVOLTAGE PROTEC	CTION[V]	6.30 - 7.00	13.90 - 16.35	27.60 - 32.40			
OTHERS	REMOTE SENSING		Provided					
01112110	REMOTE ON/OFF		Not provided					
	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)				
ISOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 1	0mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)				
	OUTPUT-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)					
	OPERATING TEMP., HUMID. AND	ALTITUDE	-40 to +100℃ (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max					
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max					
FIANIDOMNENI	VIBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes p	eriod, 60minutes each along X, Y and	Z axis			
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis					
SAFETY AND	AGENCY APPROVALS		UL60950-1, C-UL (CSA60950-1), EN62368-1					
NOISE REGULATIONS	HARMONIC ATTENU	IATOR	Complies with IEC61000-3-2 (Class A	·-				
OTHERS	CASE SIZE/WEIGHT		58.4×12.7×61.0mm [2.3×0.5×2.4	, ,				
OTTIENS	COOLING METHOD		Conduction cooling (e.g. heat radiatio	n from the aluminum base plate to the	attached heat sink)			
ated Defends	no to instruction manual for manualing method of electric pharmatoristics							

- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class.







- % Tolerance : ±0.3 [±0.012]
 % Weight : 120g max
- * Dimensions in mm, []=inches
- ** Mounting hole screwing torque : 0.49N · m (5.0kgf · cm) max

Ordering information

TUNS300F

300



- Series name
 Single output
 Output wattage
- 4 Universal Input
- ⑤Output voltage
- (a) Optional
 T: with Mounting hole
 (\$\phi 3.4 \text{ thru})
 - Y1: Outputvoltage adjustment
 - range ±20% (Only 48V) R1: with Remote ON/OFF
 - (Negative logic control)
 R2: with Remote ON/OFF (Negative logic and Low standby power)
 R3: with Remote ON/OFF
- (Positive logic control)
- N1: Auto restart from thermal protection

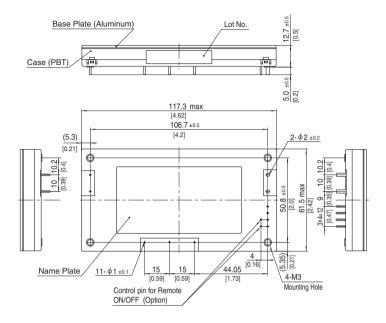
- *Avoid short circuit between +BC/R and -BC. It may cause the failure of inside components.
- \star Keep TRM open, if output voltage adjustment is not necessary.
- *If remote sensing is not necessary, connect between +Vout & +S and between -Vout & -S.

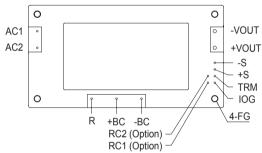
MODEL	TUNS300F12	TUNS300F28	TUNS300F48
MAX OUTPUT WATTAGE[W]	300	308	312
DC OUTPUT	12V 25A	28V 11A	48V 6.5A

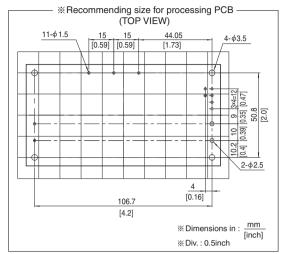
	MODEL		TUNS300F12	TUNS300F28	TUNS300F48			
	VOLTAGE[V]		AC85 - 264 1 φ					
	CURRENT[A]	ACIN 100V	3.6typ (lo=100%)					
CORNENT[A]		ACIN 200V	1.8typ (lo=100%)					
	FREQUENCY[Hz]	,	50/60 (47 - 63)	50/60 (47 - 63)				
INPUT	EFFICIENCY[0/1	ACIN 100V	84typ	87typ	87typ			
INPUT	EFFICIENCY[%]	ACIN 200V	86typ	89typ	90typ			
	POWER FACTOR (Io=100%)	ACIN 100V	0.96typ					
	POWER FACTOR (IO=100%)	ACIN 200V	0.93typ					
	INRUSH CURRENT		Limited by external resistance					
	LEAKAGE CURREN	T[mA]	0.75max (ACIN 240V 60Hz, lo=100%	, According to IEC62368-1)				
	VOLTAGE[V]		12	28	48			
	CURRENT[A]		25	11	6.5			
	LINE REGULATION[mV]	24max	56max	96max			
	LOAD REGULATION	[mV]	24max	56max	96max			
	RIPPLE[mVp-p]	0 to +100℃*1	120max	180max	250max			
	niPPLE[iiivp-p]	-40 to 0°C *1	150max	200max	300max			
OUTPUT	RIPPLE NOISE[mVp-p]	0 to +100℃*1	150max	200max	300max			
OUIFUI	HIPPLE NOISE[IIIVP-P]	-40 to 0°C *1	200max	300max	450max			
	TEMPERATURE REGULATION(mV)	0 to +65°C	120max	280max	480max			
		-40 to +100℃	240max	560max	960max			
	DRIFT[mV]	*2	40max	90max	180max			
	OUTPUT VOLTAGE ADJUSTMEN	IT BANGEIVI	Fixed (TRM pin open), adjustable by					
	OUT OF VOLIAGE ADDOORMEN	ii iiAitGE[1]	9.60 - 14.40	22.40 - 33.60	38.40 - 52.80 (-Y1 Option : 38.4 - 57.6)			
	OUTPUT VOLTAGE SET		11.91 - 12.29	27.56 - 28.44	47.24 - 48.76			
PROTECTION	OVERCURRENT PROT	ECTION	Works over 105% of rating and recove	ers automatically				
CIRCUIT AND	OVERVOLTAGE PROTE	CTION[V]	15.00 - 16.80	35.00 - 39.20	55.20 - 64.80 (-Y1 Option : 60.0 - 67.2)			
OTHERS	REMOTE SENSING		Provided					
	REMOTE ON/OFF		Optional (External power supply is red					
	INPUT-OUTPUT · RO	*4	AC3,000V 1minute, Cutoff current = 1					
ISOLATION	INPUT-FG			0mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)				
1002/111011	OUTPUT · RC-FG	-	710000 V Tillinato, Outon ourront = 10					
	OUTPUT-RC	*4	THE TOOK THIMITALE, Outon Current = TOOMIN, BOTOOV TOWISE THIMIT (20 ± 10 °C)					
	OPERATING TEMP., HUMID. AND ALTITUDE		-40 to +100°C (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max					
ENVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-40 to +100℃, 20 - 95%RH (Non con	<u> </u>				
	VIBRATION		, , , , ,	eriod, 60minutes each along X, Y and	Zaxis			
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis					
SAFETY AND	AGENCY APPROVALS		UL60950-1, C-UL (CSA60950-1), EN					
NOISE REGULATIONS	HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3			·	_			
OTHERS	CASE SIZE/WEIGHT		117.3×12.7×61.5mm [4.62×0.5×2					
	COOLING METHOD		Conduction cooling (e.g. heat radiatio	n from the aluminum base plate to the	attached heat sink)			

- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class.
 "RC" is applicable when remote control (optional) is added.







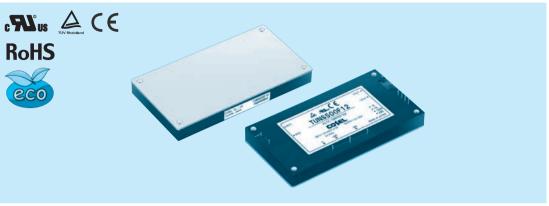


- ** Tolerance : ±0.3 [± 0.012]
- * Weight : 190g max
- ※ Dimensions in mm, []=inches
- Mounting hole screwing torque: 0.49N · m (5.0kgf · cm) max

Ordering information

TUNS500F

500 ₄



- Series name
 Single output
 Output wattage
- 4 Universal Input
- ⑤Output voltage
- Optional
 T : with Mounting hole $(\phi 3.4 \text{ thru})$
- Y1: Outputvoltage adjustment range ±20% (Only 48V) R1: with Remote ON/OFF
- (Negative logic control) R2: with Remote ON/OFF (Negative logic and Low standby power)
- R3: with Remote ON/OFF (Positive logic control)
- N1: Auto restart from thermal protection

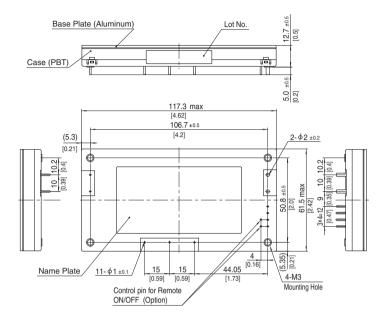
- *Avoid short circuit between +BC/R and -BC. It may cause the failure of inside components.
- *Keep TRM open, if output voltage adjustment is not necessary.
- *If remote sensing is not necessary, connect between +Vout & +S and between -Vout & -S.

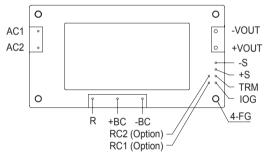
MODEL	TUNS500F12	TUNS500F28	TUNS500F48
MAX OUTPUT WATTAGE[W]	504	504	504
DC OUTPUT	12V 42A (Peak 55A)	28V 18A (Peak 24A)	48V 10.5A (Peak 14A)

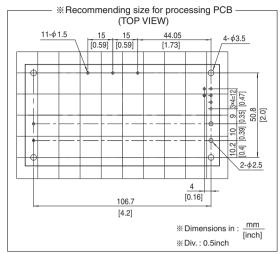
	MODEL		TUNS500F12	TUNS500F28	TUNS500F48			
	VOLTAGE[V]		AC85 - 264 1 φ					
	OUDDENTIAL	ACIN 100V	6.0typ (lo=100%)					
CURRENT[A]		ACIN 200V	3.0typ (Io=100%)	.0typ (lo=100%)				
	FREQUENCY[Hz]		50/60 (47 - 63)					
INPUT	EFFICIENCY[9/1	ACIN 100V	84typ	87typ	88typ			
INPUT	EFFICIENCY[%]	ACIN 200V	86typ	90typ	90.5typ			
	POWER FACTOR (Io=100%)	ACIN 100V	0.96typ					
	POWER PACTOR (10=100%)	ACIN 200V	0.93typ					
[INRUSH CURRENT		Limited by external resistance					
	LEAKAGE CURREN	T[mA]	0.75max (ACIN 240V 60Hz, lo=100%	, According to IEC62368-1)				
	VOLTAGE[V]		12	28	48			
	CURRENT[A]	*3	42 (Peak 55)	18 (Peak 24)	10.5 (Peak 14)			
	LINE REGULATION[mV]	24max	56max	96max			
	LOAD REGULATION	[mV]	24max	56max	96max			
	RIPPLE[mVp-p]	0 to +100℃*1	120max	180max	250max			
	NIPPLE[IIIVP-P]	-40 to 0°C *1	150max	200max	300max			
OUTPUT	RIPPLE NOISE[mVp-p]	0 to +100℃*1	150max	200max	300max			
JUIPUI	NIPPLE NOISE[IIIVP-P]	-40 to 0°C *1	200max	300max	450max			
	TEMPERATURE REGULATION(mV)	0 to +65℃	120max	280max	480max			
	TEMPERATURE REGULATION[IIV]	-40 to +100℃	240max	560max	960max			
	DRIFT[mV]	*2	40max	90max	180max			
	OUTPUT VOLTAGE ADJUSTMEN	IT DANGEIVI	Fixed (TRM pin open), adjustable by	external resistor or external signal				
	OUTFUT VOLINGE ADJUSTMEN	II NANGE[V]	9.60 - 14.40	22.40 - 33.60	38.40 - 52.80 (-Y1 Option : 38.4 - 57.6)			
	OUTPUT VOLTAGE SET	TING[V]	11.91 - 12.29	27.56 - 28.44	47.24 - 48.76			
DOTECTION	OVERCURRENT PROT	ECTION	Works over 101% of peak current and	recovers automatically				
PROTECTION CIRCUIT AND	OVERVOLTAGE PROTEC	CTION[V]	15.00 - 16.80	35.00 - 39.20	55.20 - 64.80 (-Y1 Option : 60.0 - 67.2)			
OTHERS	REMOTE SENSING		Provided					
	REMOTE ON/OFF		Optional (External power supply is re-					
	INPUT-OUTPUT · RO	*5	AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)				
SOLATION	INPUT-FG		AC2,000V 1minute, Cutoff current = 1	, ,				
JOLAHON	OUTPUT · RC-FG		ricocci illiniato, caton carront					
	OUTPUT-RC		7.0.001 minute, outen current					
	OPERATING TEMP., HUMID. AND	ALTITUDE	-40 to +100℃ (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max					
NVIRONMENT	STORAGE TEMP., HUMID. AND	ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max					
	VIBRATION		10 - 55Hz, 49.0m/s ² (5G), 3minutes p		Z axis			
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis					
SAFETY AND	AGENCY APPROVAL	_S	UL60950-1, C-UL (CSA60950-1), EN					
IOISE REGULATIONS	HARMONIC ATTENU	IATOR	Complies with IEC61000-3-2 (Class A					
OTHERS	CASE SIZE/WEIGHT		117.3×12.7×61.5mm [4.62×0.5×2					
OTHERS	COOLING METHOD		Conduction cooling (e.g. heat radiatio	n from the aluminum base plate to the	attached heat sink)			

- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- () means peak current. Avoid operating with peak current continuously. It may cause failure of the components inside the product. There are limitation of available condition of the peak current, such as peak time, duty etc. (Refer to the instruction manual in detail.)
- Please contact us about another class.
- *****5 "RC" is applicable when remote control (optional) is added.









- ** Tolerance : ±0.3 [± 0.012]
- * Weight : 190g max
- ※ Dimensions in mm, []=inches
- Mounting hole screwing torque: 0.49N · m (5.0kgf · cm) max

700



- *Avoid short circuit between +BC/R and -BC. It may cause the failure of inside components.
- *Keep TRM open, if output voltage adjustment is not necessary.
- *If remote sensing is not necessary, connect between +Vout & +S and between -Vout & -S.

- ①Series name
 ②Single output
 ③Output wattage
 ④Universal Input
 ⑤Output voltage
 ⑥Optional
 T: with Mounting hole
 (\$\phi 3.4\text{ thru})
 Y1: Outputvoltage adjustment
 range ±20% (Only 48V)
 R1: with Remote ON/OFF
 (Negative logic control)

 - (Negative logic control)
 R2: with Remote ON/OFF
 (Negative logic and Low standby power)
 R3: with Remote ON/OFF

 - (Positive logic control)
 P: Parallel operation
 (Output voltage trimming disabled,
 Remote sensing disabled)

MODEL	TUNS700F12	TUNS700F28	TUNS700F48
MAX OUTPUT WATTAGE[W]	700.8	700.0	700.8
DC OUTPUT	12V 58.4A	28V 25A	48V 14.6A

SPECIFICATIONS

	MODEL		TUNS700F12	TUNS700F28	TUNS700F48	
	VOLTAGE[V]		AC85 - 264 1 φ			
	CUDDENTIAL	ACIN 100V	8.6typ (lo=100%)			
	CURRENT[A]	ACIN 200V	4.1typ (lo=100%)			
	FREQUENCY[Hz]		50/60 (47 - 63)			
INPUT	EFFICIENCY[%]	ACIN 100V	83typ	86typ	87typ	
INPUT	EFFICIENCY[%]	ACIN 200V	86typ	89typ	90typ	
	POWER FACTOR	ACIN 100V				
	(lo=100%)	ACIN 200V	0.93typ			
	INRUSH CURRENT		Limited by external resistance			
	LEAKAGE CURREN	T[mA]	0.75max (ACIN 240V 60Hz, lo=100%	, According to IEC62368-1)		
	VOLTAGE[V]		12	28	48	
	CURRENT[A]		58.4	25	14.6	
	LINE REGULATION[I		24max	56max	96max	
	LOAD REGULATION	[mV]	24max	56max	96max	
	RIPPLE[mVp-p]	0 to +100°C *1	120max	180max	250max	
	nirrcc[iiivp-p]	-40 to 0°C *1	150max	200max	300max	
ОИТРИТ	RIPPLE NOISE[mVp-p]	0 to +100℃*1	150max	200max	300max	
OUTPUT	HIPPLE NOISE[IIIVP-P]	-40 to 0°C *1	200max	300max	450max	
	TEMPERATURE REGULATION[mV]	0 to +65℃	120max	280max	480max	
		-40 to +100°C	240max	560max	960max	
	DRIFT[mV]	*2	40max	90max	180max	
	OUTPUT VOLTAGE ADJUSTMEN	IT	Fixed (TRM pin open), adjustable by	external resistor or external signal		
	RANGE[V]		9.60 - 14.40	22.40 - 33.60	38.40 - 52.80 (-Y1 Option : 38.4 - 57.6)	
	OUTPUT VOLTAGE SET		11.91 - 12.29	27.56 - 28.44	47.24 - 48.76	
DDOTECTION	OVERCURRENT PROT		Works over 105% of rating and recove			
PROTECTION	OVERVOLTAGE PROTEC	TION[V]	15.00 - 16.80	35.00 - 39.20	55.20 - 64.80 (-Y1 Option : 60.0 - 67.2)	
CIRCUIT AND OTHERS	REMOTE SENSING		Provided			
UTHERS	REMOTE ON/OFF		Optional (External power supply is required)			
MODEL	<u> </u>		TUNS700F12-P	TUNS700F28-P	TUNS700F48-P	
	JT WATTAGE[W]		700.8	700.0	700.8	
DC OUTPUT			12V 58.4A	28V 25A	48V 14.6A	
טט טטורטו		12 V 30.4A	20 V 23A	40V 14.0A		

	MODEL		TUNS700F12-P	TUNS700F28-P	TUNS700F48-P
	VOLTAGE[V]		AC85 - 264 1 φ		
	CURRENT[A]	ACIN 100V	8.6typ (lo=100%)		
	CONNENTIA	ACIN 200V	4.1typ (lo=100%)		
	FREQUENCY[Hz]		50/60 (47 - 63)		
INPUT	EFFICIENCY[%]	ACIN 100V	83typ	86typ	87typ
INFUI	EFFICIENCY[%]	ACIN 200V	86typ	89typ	90typ
	POWER FACTOR	ACIN 100V	0.96typ		
	(lo=100%)	ACIN 200V	0.93typ		
	INRUSH CURRENT	Т	Limited by external resistance		
	LEAKAGE CURRE	NT[mA]	0.75max (ACIN 240V 60Hz, lo=100%, According to IEC62368-1)		
	VOLTAGE[V]		12	28	48
	CURRENT[A]		58.4	25	14.6
	VOLTAGE ACCUR	ACY[%]	+5, -3	+5, -3	+5, -3
		0 to +100°C *1	240max	360max	600max
OUTPUT	RIPPLE[mVp-p]	-40 to 0°C *1	300max	400max	700max
		0 to +30% Load *1	360max	540max	900max
		0 to +100°C *1	300max	400max	700max
	RIPPLE NOISE[mVp-p]	-40 to 0°C *1	400max	600max	1000max
		0 to +30% Load *1	450max	600max	1000max
PROTECTION	N OVERCURRENT PROTECTION		Works over 105% of rating and recover	ers automatically	
CIRCUIT AND	ND OVERVOLTAGE PROTECTION[V]		15.00 - 16.80	35.00 - 39.20	55.20 - 64.80
OTHERS	REMOTE ON/OFF		Optional (External power supply is re-	quired)	



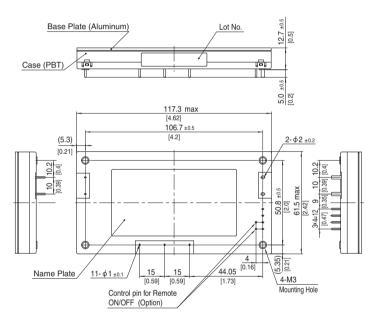


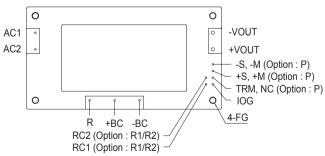
GENERAL SPECIFICATIONS

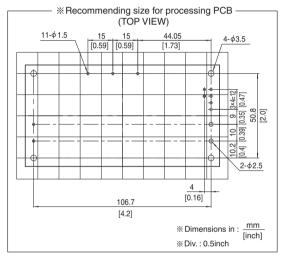
INPUT-OUTPUT · RC			
OUTPUT · RC-FG		INPUT-OUTPUT · RC *4	AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)
OUTPUT · RC-FG *4 AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (20±15°C) OUTPUT-RC *4 AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (20±15°C) ENVIRONMENT OPERATING TEMP,HUMID.AND ALTITUDE (On aluminum base plate), 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max STORAGE TEMP,HUMID.AND ALTITUDE (On aluminum base plate), 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max VIBRATION (IMPACT) 10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis SAFETY AND (NOISE REGULATIONS) AGENCY APPROVALS (UL60950-1, C-UL (CSA60950-1), EN62368-1 NOISE REGULATIONS HARMONIC ATTENUATOR (Complies with IEC61000-3-2 (Class A) *3 OTHERS CASE SIZE/WEIGHT 117.3×12.7×61.5mm [4.62×0.5×2.42 inches] (W×H×D) / 190g max	ICOL ATION	INPUT-FG	AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)
## PRENTIRONMENT OPERATING TEMP, HUMID.AND ALTITUDE -40 to +100°C (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max	ISOLATION	OUTPUT · RC-FG *4	AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (20±15°C)
## STORAGE TEMP., HUMID.AND ALTITUDE		OUTPUT-RC *4	AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (20±15°C)
ENVIRONMENT VIBRATION 10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis IMPACT 196.1m/s² (20G), 11ms, once each along X, Y and Z axis SAFETY AND AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN62368-1 NOISE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) ∗3 CASE SIZE/WEIGHT 117.3×12.7×61.5mm [4.62×0.5×2.42 inches] (W×H×D) / 190g max	OPERATING TEMP.,HUMID.AND ALTITUDE		-40 to +100℃ (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max
VIBRATION 10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis	ENVIDONMENT	STORAGE TEMP., HUMID. AND ALTITUDE	-40 to +100℃, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max
SAFETY AND AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN62368-1 NOISE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3 OTHERS CASE SIZE/WEIGHT 117.3×12.7×61.5mm [4.62×0.5×2.42 inches] (W×H×D) / 190g max	ENVIRONMENT	VIBRATION	10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis
NOISE REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) *3 OTHERS CASE SIZE/WEIGHT 117.3×12.7×61.5mm [4.62×0.5×2.42 inches] (W×H×D) / 190g max		IMPACT	196.1m/s² (20G), 11ms, once each along X, Y and Z axis
OTHERS	SAFETY AND	AGENCY APPROVALS	UL60950-1, C-UL (CSA60950-1), EN62368-1
OTHERS	NOISE REGULATIONS	HARMONIC ATTENUATOR	Complies with IEC61000-3-2 (Class A) *3
COOLING METHOD Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)	OTHERS	CASE SIZE/WEIGHT	117.3×12.7×61.5mm [4.62×0.5×2.42 inches] (W×H×D) / 190g max
0,0		COOLING METHOD	Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)

- Refer to instruction manual for measuring method of electric characteristics.

 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class
- "RC" is applicable when remote control (optional) is added.







- % Tolerance : ±0.3 [±0.012]
- * Weight: 190g max
- ※ Dimensions in mm, []=inches
- Mounting hole screwing torque: 0.49N · m (5.0kgf · cm) max

TUNS1200F

1200 F



- Series name
 Single output
 Output wattage
- 4 Universal Input
- ⑤Output voltage
- (a) Optional
 T: with Mounting hole
 (\$\phi 3.4 \text{ thru})
- Y1: Outputvoltage adjustment
- range ±20% (Only 48V)
 R3: with Remote ON/OFF
- (Positive logic control) N1: Auto restart from thermal protection

- *Avoid short circuit between +BC/R and -BC. It may cause the failure of inside components.
- *Keep VTRM open, if output voltage adjustment is not necessary.
- \star Keep ITRM open, if output current adjustment is not necessary.
- *If remote sensing is not necessary, connect between +Vout & +S and between -Vout & -S.

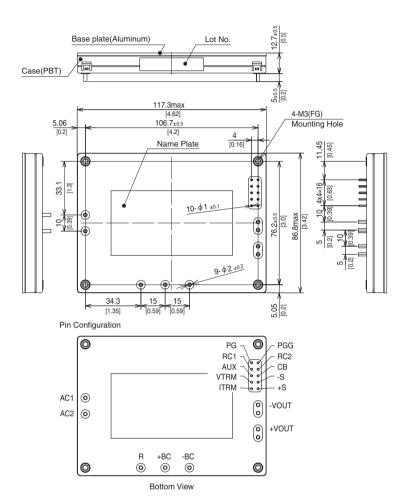
MODEL	TUNS1200F12	TUNS1200F28	TUNS1200F48		
MAX OUTPUT WATTAGE[W] 1008		1204	1200		
DC OUTPUT	12V 84A	28V 43A	48V 25A		

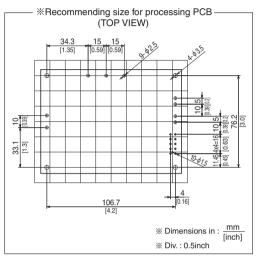
IV	MODEL		TUNS1200F12	TUNS1200F28	TUNS1200F48				
V	VOLTAGE[V]		AC85 - 305V 1 φ						
	AC		12typ	14typ	14typ				
0	CURRENT[A]	ACIN 200V	5.9typ	6.7typ	6.6typ				
F	FREQUENCY[Hz]		50/60 (47 - 63)						
	EELOJENIOWO/1	ACIN 100V	85typ	89typ	90typ				
NPUT E	EFFICIENCY[%]	ACIN 200V	87typ	91typ	92typ				
	10WED E4 070D (L. 4000()	ACIN 100V	0.98typ						
	POWER FACTOR (Io=100%) ACII		0.95typ						
II	NRUSH CURRENT		Limited by external resistance						
L	EAKAGE CURRENT	Γ[mA]	0.5max (ACIN 240V 60Hz, Io=100%, According to IEC60601-1)						
V	/OLTAGE[V]		12	28	48				
C	CURRENT[A]		84	43	25				
L	INE REGULATION[1	nV]	24max	56max	96max				
L	OAD REGULATION	[mV]	24max	56max	96max				
	DIDDI E[m//m m]	0 to +100°C * 1	150max	180max	250max				
H	RIPPLE[mVp-p]	-40 to 0°C *1	180max	200max	300max				
	NDDI E NOIGEE-W1	0 to +100℃ *1	180max	200max	300max				
DUTPUT R	RIPPLE NOISE[mVp-p]	-40 to 0°C *1	200max	300max	450max				
	EMPERATURE REQUILATIONSVI	0 to +80°C *1	120max	280max	480max				
15	EMPERATURE REGULATION[mV]	-40 to +100°C * 1	240max	560max	960max				
D	DRIFT[mV] *2		40max	90max	180max				
0	OUTPUT VOLTAGE ADJUSTMENT RANGE[V]		Fixed (TRM pin open), adjustable by external resistor or external signal						
0			9.60 - 14.40	22.40 - 33.60	38.40 - 52.80 (-Y1 Option : 38.4 - 57.6)				
0	OUTPUT VOLTAGE SETTING[V]		11.91 - 12.29	27.56 - 28.44	47.24 - 48.76				
0	OVERCURRENT PROTECTION		Works over 105% of rating and recovers automatically						
PROTECTION O	VERVOLTAGE PROTEC	CTION[V]	15.00 - 16.80 35.00 - 39.20 55.20 - 60.00 (-Y1 Option						
OTHERS R	REMOTE SENSING		Provided						
R	REMOTE ON/OFF		Provided						
II.	NPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (20±15 $^{\circ}$ C) 2MOOP						
III	NPUT-FG		AC2,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (20±15 $^{\circ}$ C) 1MOOP						
SOLATION C	OUTPUT-FG		AC500V 1minute, Cutoff current = 100mA, DC500V 50MΩ min (20±15°C)						
O	OUTPUT-RC, PG		AC100V 1minute, Cutoff current = 100mA, DC100V 10MΩ min (20±15°C)						
0	PERATING TEMP., HUMID. AND	ALTITUDE	-40 to +100°C (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to DERATING CURVE)						
NVIRONMENT	STORAGE TEMP., HUMID. AND ALTITUDE		-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max						
V	/IBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis						
II	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis						
	AGENCY APPROVALS		UL62368-1, EN62368-1, C-UL (equivalent to CAN/CSA-C22.2 No.62368-1), ANSI/AAMI ES60601-1, EN60601-1 3rd, C-UL (equivalent to CAN/CSA-C22.2 No.60601-1), Complies with IEC60601-1-2 4th						
IOISE REGULATIONS H	HARMONIC ATTENU	ATOR	Complies with IEC61000-3-2 (Class A) *3						
C	CASE SIZE/WEIGHT		117.3×12.7×86.8mm [4.62×0.5×3.42 inches] (W×H×D) / 280g max						
OTHERS C	COOLING METHOD		Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)						
			od of electric characteristics						

- Refer to instruction manual for measuring method of electric characteristics.

 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- Please contact us about another class.





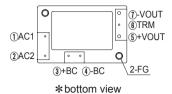


- % Tolerance : ±0.3 [±0.012]
- * Weight: 280g max
- Dimensions in mm, []=inches
- Mounting hole screwing torque: 0.49N · m (5.0kgf · cm) max

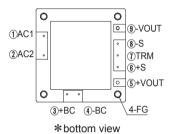
COSEL | TUNS-series

Pin Configuration

TUNS50F

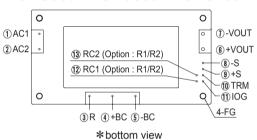


TUNS100F

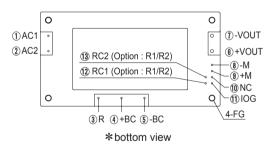


No. Pin Connection Function AC1 AC input 2 2 AC2 3 3 +BC +BC output 4 -BC -BC output 4 +VOUT +DC output (5) (5) -DC output 7 9 -VOUT -S Remote sensing (-) 8 Remote sensing (+) **(6)** +S **6** Adjustment of output voltage 7 TRM FG Mounting hole (FG)

TUNS300F/TUNS500F/TUNS700F



■ TUNS700F□□-P (OPTION)

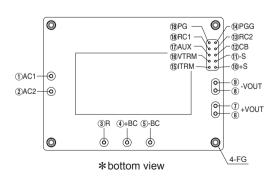


No.	Pin Connection	Function			
1	AC1	AC input			
2	AC2	AC input			
3	R	External resistor for inrush current protection			
4	+BC	+BC output			
(5)	-BC	-BC output			
6	+VOUT	+DC output			
1	-VOUT	-DC output			
8	-S	Remote sensing (-)			
9	+S	Remote sensing (+)			
10	TRM	Adjustment of output voltage			
11)	IOG	Inverter operation monitor			
12	RC1	Pamata ON/OFF (Ontion)			
13	RC2	Remote ON/OFF (Option)			
_	FG	Mounting hole (FG)			

No.	Pin Connection	Function	
8	-M	Output valtage maniter terminal	
9	+M	Output voltage monitor terminal	
10	NC	No connection	

Other than the above are the same as standard products.

TUNS1200F



No.	Pin Connection	Function			
1	AC1	AC input			
2	AC2	AC input			
3	R	External resistor for inrush current protection			
4	+BC	+BC output			
5	-BC	-BC output			
67	+VOUT	+DC output			
89	-VOUT	-DC output			
10	+S	Remote sensing (+)			
11)	-S	Remote sensing (-)			
12	CB	Current balance			
13	RC2	Remote ON/OFF ground			
14)	PGG	Power good output ground			
15)	ITRM	Adjustment of output current			
16	VTRM	Adjustment of output voltage			
17)	AUX	Auxiliary output			
18	RC1	Remote ON/OFF			
19	PG	Power good output			
_	FG	Mounting hole (FG)			



Implementation • Mounting Method

Mounting method

- ■Use with the conduction cooling (e.g. heat dissipation from the aluminum base plate to the attached heat sink).
- ■Use a heat sink that larger than the power supply and has a large thickness so that the alminum base plate can be cooled uniformly.
- ■The unit can be mounted in any direction. When two or more power supplies are used side by side, position them with proper intervals to allow enough air ventilation. Aluminum base plate temperature of each power supply should not exceed the temperature range shown in
- ■Avoid placing the AC input line pattern layout underneath the unit. It will increase the line conducted noise. Make sure to leave an ample distance between the line pattern layout and the unit. Also avoid placing the DC output line pattern underneath the unit because it may increase the output noise. Lay out the pattern away from the unit.
- ■Avoid placing the signal line pattern layout underneath the unit because the power supply might become unstable. Lay out the pattern away from the unit.
- ■High-frequency noise radiates directly from the unit to the atmosphere. Therefore, design the shield pattern on the printed circuit board and connect it to FG or -BC. The shield pattern prevents noise radiation.
- ■When a heat sink cannot be fixed on the base plate side, order the power module with "-T"option. A heat sink can be mounted by affixing a M3 tap on the heat sink. Please make sure a mounting hole will be connected to a grounding capacitor CY.

		Mounting hole			
ĺ	Standard	M3 tapped			
ĺ	Optional : -T	φ 3.4 thru			

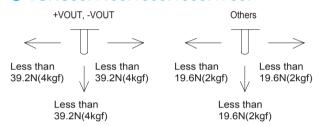
Stress onto the pins

- ■When too much stress is applied to the pins may damage internal connections. Avoid applying stress in excess of that shown in right figure.
- ■The pins are soldered onto the internal PCB. Therefore, Do not bend or pull the leads with excessive force.
- ■Mounting hole diameter of PCB should be 3.5mm to reduce the stress to the pins.
- ■Fix the unit on PCB (fixing fittings) by screws to reduce the stress to the pins. Be sure to mount the unit first, then solder the unit.

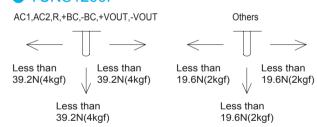
Soldering temperature

■Flow soldering : 260°C for up to 15 seconds. ■Soldering iron (26W) : 450°C for up to 5 seconds.

TUNS50F/100F/300F/500F/700F



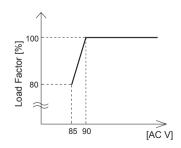
TUNS1200F



Derating

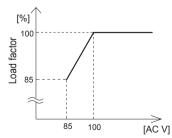
Input voltage derating curve

TUNS50F/100F



TUNS700F/1200F

*TUNS1200F12 has no input voltage derating.



TUNS300F/500F

*TUNS300F/500F has no input voltage derating.

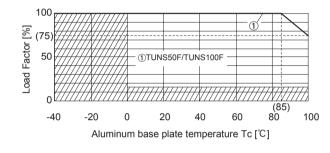
Derating

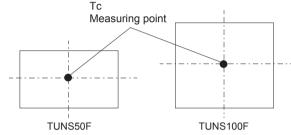
Output voltage derating curve

- ■Use the power modules with conduction cooling (e.g. heat dissipation from the aluminum base plate to the attached heat sink).

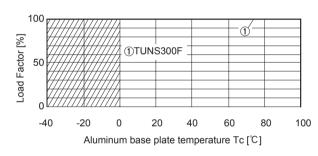
 Below shows the derating curves with respect to the aluminum base plate temperature. Note that operation within the hatched areas will cause a significant level of ripple and ripple noise.
- ■Please measure the temperature on the aluminum base plate edge side when you cannot measure the temperature of the center part of the aluminum base plate. In this case, please take 5deg temperature margin from the derating characteristics shown in below. Please reduce the temperature fluctuation range as much as possible when the up and down of the temperature are frequently generated. Contact us for more information on cooling methods.

TUNS50F/100F

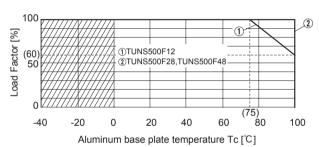




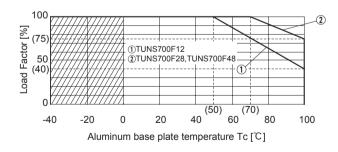
TUNS300F

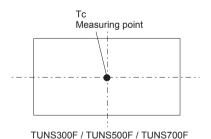


TUNS500F

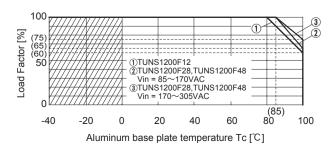


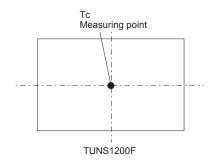
TUNS700F





TUNS1200F







Instruction Manual

◆ It is neccessary to read the "Instruction Manual" and "Before using our product" before you use our product.

https://en.cosel.co.jp/product/powersupply/TUNS/ Instruction Manual Before using our product https://en.cosel.co.jp/technical/caution/index.html





Basic Characteristics Data

Model	Circuit method	frequency curren	Input	ent current protection	PCB/Pattern		Series/Parallel operation availability		
Model			[A] * 1		Material	Single sided	Double sided	Series operation	Parallel operation
TUNS50F	Active filter	80-600	0.67	Thermistor	Aluminum	Yes		Yes	*2
10113301	Flyback converter	100-300	0.07						
TUNS100F	Active filter	80-600	1.3	Thermistor	Aluminum	Yes		Yes	*2
10113100F	Forward converter	300							
TUNS300F	Active filter	100	3.6	SCR	Aluminum	Yes		Yes	* 2
10115300F	Half-bridge converter	400							
TUNS500F	Active filter	100	6.0	SCR	Aluminum	Yes		Yes	*2
101/22001	Half-bridge converter	400							
TUNCZOOF	Active filter	100	8.6	SCR	Aluminum	Yes		Yes	*2
TUNS700F	Half-bridge converter	400							
TUNS1200F	Active filter	100	14	SCR	Aluminum	Yes		Voo	Yes
101131200F	Full-bridge converter	400						Yes	

^{*1} The value of input current is at ACIN 100V and rated load.

^{*2} Refer to instruction manual.