

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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(Note 2) “Renesas Electronics product(s)” means any product developed or manufactured by or for Renesas Electronics.

Phase-out/Discontinued

μ PA1428

NPN SILICON POWER TRANSISTOR ARRAY LOW SPEED SWITCHING USE (DARLINGTON TRANSISTOR) INDUSTRIAL USE

DESCRIPTION

The μ PA1428 is NPN silicon epitaxial Darlington Power Transistor Array that built in Surge Absorber 4 circuits designed for driving solenoid, relay, lamp and so on.

FEATURES

- Surge Absorber built in.
- Easy mount by 0.1 inch of terminal interval.
- High h_{FE} for Darlington Transistor.

ORDERING INFORMATION

Part Number	Package	Quality Grade
μ PA1428H	10 Pin SIP	Standard

Please refer to "Quality grade on NEC Semiconductor Device" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

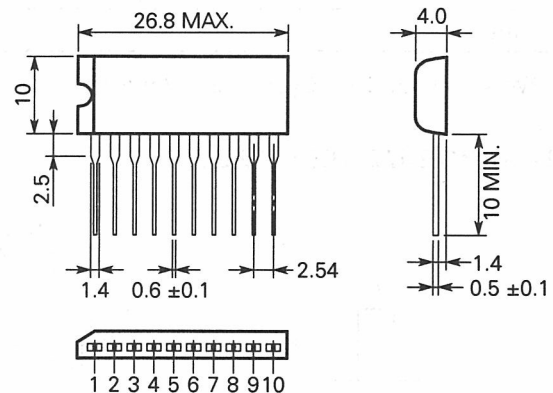
Collector to Base Voltage	V_{CBO}	60 ± 10	V
Collector to Emitter Voltage	V_{CEO}	60 ± 10	V
Emitter to Base Voltage	V_{EBO}	7	V
Surge Sustaining Energy	$E_{CEO(sus)}$	30	mJ/unit
Collector Current (DC)	$I_{C(DC)}$	± 2	A/unit
Collector Current (pulse)	$I_{C(pulse)^*}$	± 4	A/unit
Base Current (DC)	$I_{B(DC)}$	0.2	A/unit
Total Power Dissipation	P_{T1}^{**}	3.5	W
Total Power Dissipation	P_{T2}^{***}	28	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* $PW \leq 300 \mu\text{s}$, Duty Cycle $\leq 10\%$

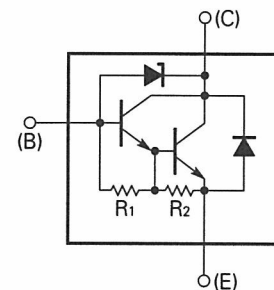
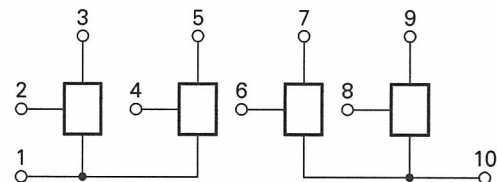
** 4 Circuits, $T_a = 25^\circ\text{C}$

*** 4 Circuits, $T_c = 25^\circ\text{C}$

PACKAGE DIMENSION (in millimeters)



CONNECTION DIAGRAM



PIN NO.

2, 4, 6, 8: Base (B)
3, 5, 7, 9: Collector (C)
1, 10: Emitter (E)
 $R_1 \approx 10 \text{ k}\Omega$
 $R_2 \approx 500 \Omega$

The information in this document is subject to change without notice.

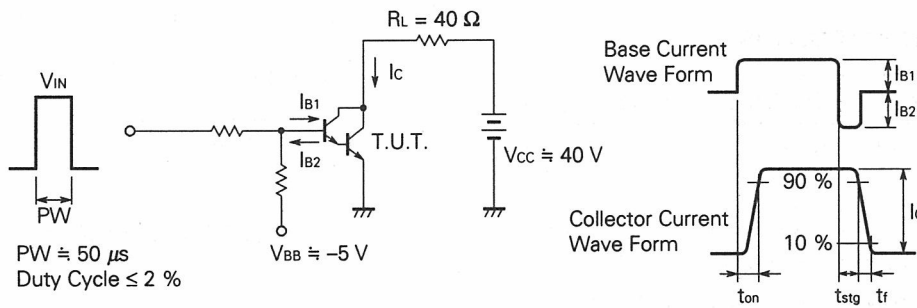
Phase-out/Discontinued

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

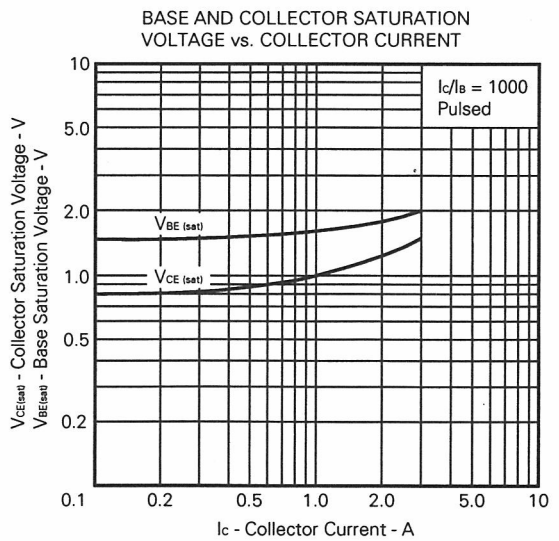
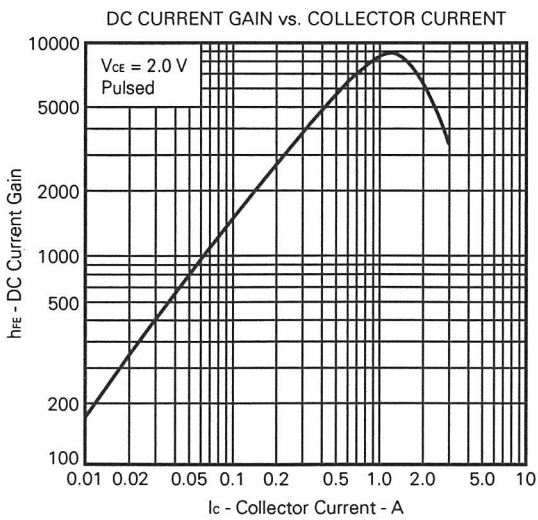
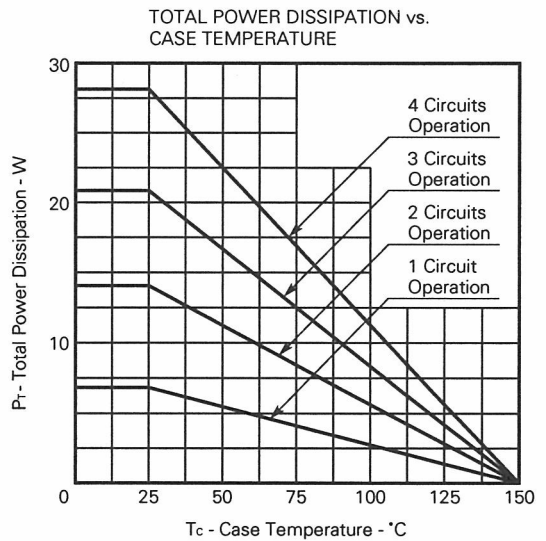
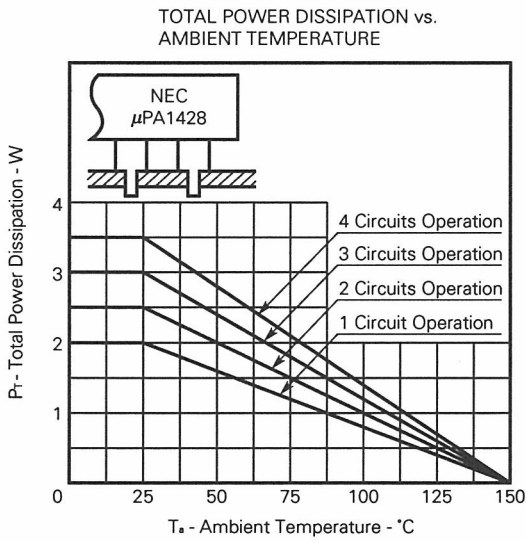
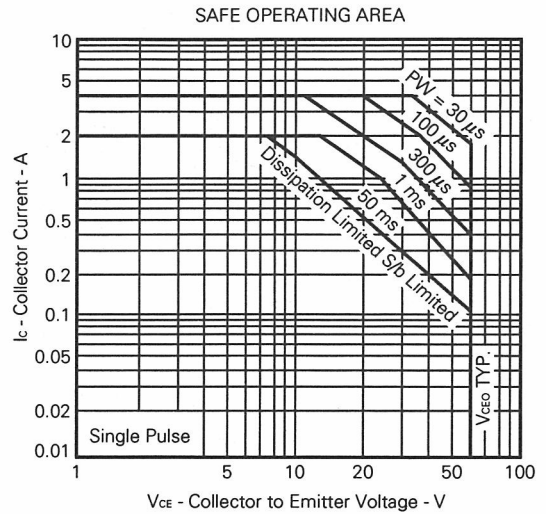
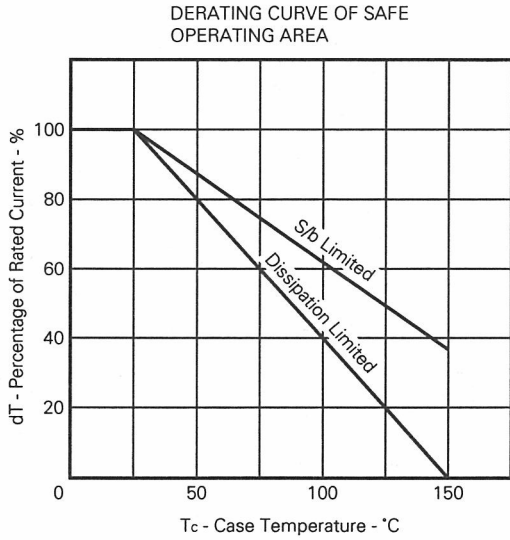
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Leakage Current	I _{CBO}			10	μA	V _{CB} = 40 V, I _E = 0
Emitter Leakage Current	I _{EBO}			1	mA	V _{EB} = 5 V, I _C = 0
Collector to Emitter Sustaining Voltage	V _{CE(sus)}	50	60	70	V	I _C = 1 A, L = 1 mH
DC Current Gain	h _{FE1} *	1000			—	V _{CE} = 2 V, I _C = 0.5 A
DC Current Gain	h _{FE2} *	2000		30000	—	V _{CE} = 2 V, I _C = 1 A
Collector Saturation Voltage	V _{CE(sat)} *			1.5	V	I _C = 1 A, I _B = 1 mA
Base Saturation Voltage	V _{BE(sat)} *			2	V	I _C = 1 A, I _B = 1 mA
Turn On Time	t _{on}		0.5		μs	I _C = 1 A I _{B1} = -I _{B2} = 1 mA V _{CC} ≅ 40 V, R _L ≅ 40 Ω
Storage Time	t _{stg}		3		μs	
Fall Time	t _f		1		μs	See test circuit

* PW ≤ 350 μs, Duty Cycle ≤ 2 % /pulsed

SWITCHING TIME TEST CIRCUIT

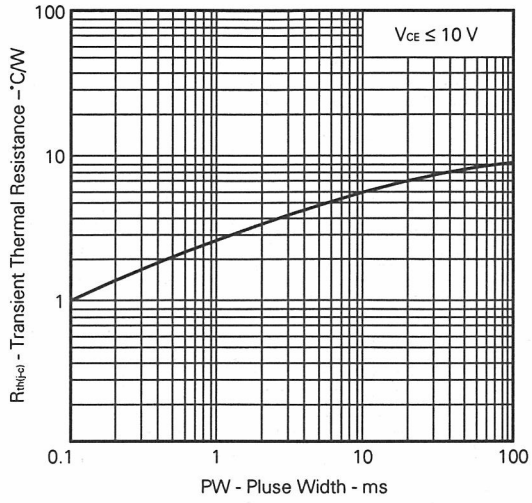


TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

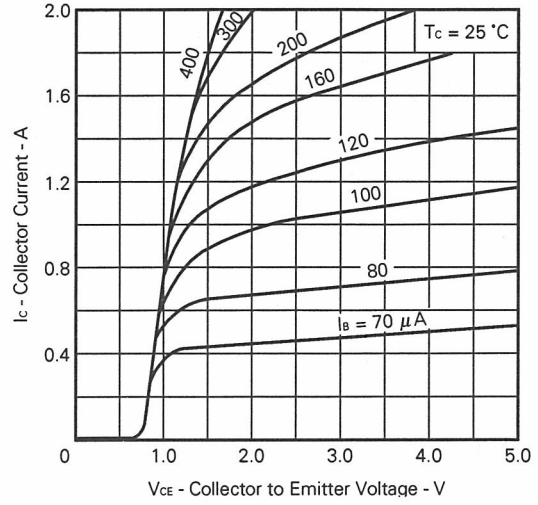


Phase-out/Discontinued

TRANSIENT THERMAL RESISTANCE



COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



Phase-out/Discontinued

REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system.	TEI-1202
Quality grade on NEC semiconductor devices.	IEI-1209
Semiconductor device mounting technology manual.	IEI-1207
Semiconductor device package manual.	IEI-1213
Guide to quality assurance for semiconductor devices.	MEI-1202
Semiconductor selection guide.	MF-1134

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Special: Automotive and Transportation equipment, Traffic control systems, Antidisaster systems, Anticrime systems, etc.