TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

HN1A02F

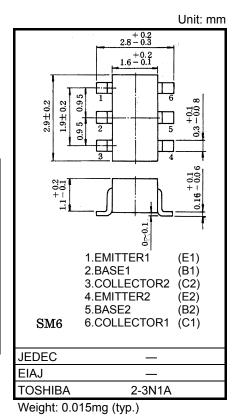
Audio Frequency Power Amplifier Applications

Switching applications

- High h_{FE} : h_{FE(1)} = 120 to 400
- Low V_{CE(sat.)}: V_{CE (sat)} = -0.2 V (max) (I_C = -400 mA, I_B = -8 mA)
- Small Power Motor Driver Application.

Absolute Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

Characteristic	Symbol	Rating	Unit	
Collector-base voltage	V _{CBO}	-15	V	
Collector-emitter voltage	V _{CEO}	-15	V	
Emitter-base voltage	V _{EBO}	-5	V	
Collector current	Ι _C	-800	mA	
Base current	Ι _Β	-160	mA	
Collector power dissipation	P _C *	300	mW	
Junction temperature	Tj	150	°C	
Storage temperature range	T _{stg}	-55 to 150	°C	



Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum

ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

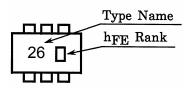
*Total rating. Power dissipation per element should not exceed 200mW.

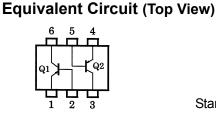
Electrical Characteristics (Ta = 25°C) (Q1,Q2 Common)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	_	V _{CB} = -15V, I _E = 0	—	_	-100	nA
Emitter cut-off current	I _{EBO}	_	$V_{EB} = -5V, I_C = 0$	—	_	-100	nA
Collector-Emitter Brakedown Voltage	V _{(BR)CEO}		$I_{\rm C}$ = -10mA, $I_{\rm B}$ = 0	-15	—	—	V
DC current gain	h _{FE(1)} (Note)		V_{CE} = -1V, I _C = -100mA	120		400	
	h _{FE(2)}		V _{CE} = -1V, I _C = -800mA	40			
Collector-emitter saturation voltage	V _{CE (sat)}	_	I _C = -400mA, I _B = -8mA	—	_	-0.2	V
Base-Emitter voltage	V _{BE}		V_{CE} = -5V, I _C = -10mA	-0.5	_	-0.8	V
Transition frequency	f _T	_	V_{CE} = -5V, I _C = -10mA	_	120	_	MHz
Collector output capacitance	Cob	_	V_{CB} = -10V, I _E = 0, f = 1MHz	_	13	_	рF

Note: hFE Classification Y (Y): 120 to 240, GR (G): 200 to 400 () Marking Symbol

Marking

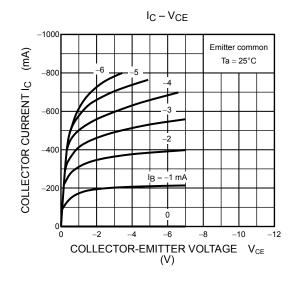


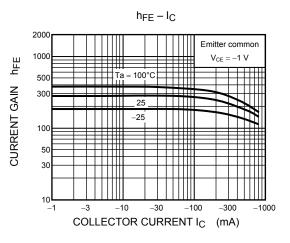


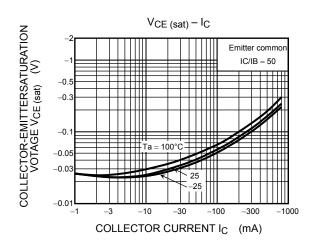
Start of commercial production 2000-02

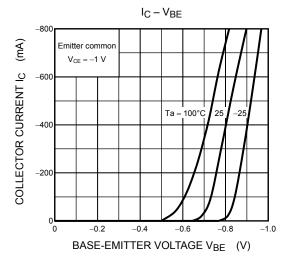
TOSHIBA

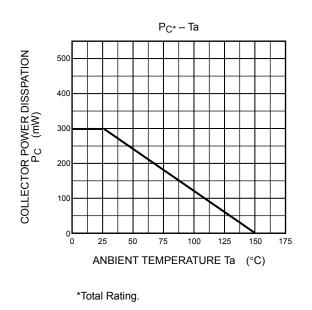
(Q1,Q2 Common)











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