NPN Plastic Encapsulate Transistors

Features

- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

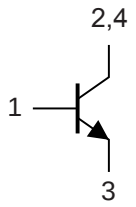
Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Thermal Resistance: 250℃/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	45	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Collector Current Single Pulse<1ms	I_{CM}	2	A
Collector Power Dissipation	P_C	500	mW

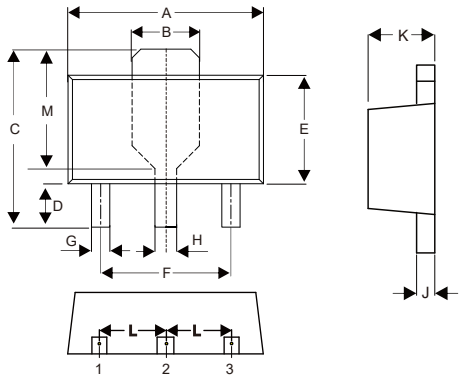
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



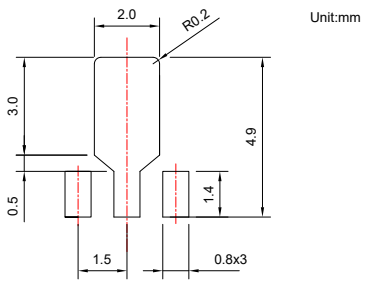
1.BASE
2,4.COLLECTOR
3.EMITTER

SOT-89



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.061		1.55		TYP.
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F	0.118		3.00		TYP.
G	0.013	0.020	0.33	0.52	
H	0.015	0.021	0.38	0.53	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L	0.059		1.50		TYP.
M	0.108		2.75		TYP.

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	45			V	I_C=100μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45			V	I_C=10mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=100μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			0.1	μA	V_{CB}=30V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}			0.1	μA	V_{EB}=5.0V, I_C=0
DC Current Gain	$h_{FE(1)}$	63		250		V_{CE}=2.0V, I_C=150mA
	$h_{FE(2)}$	40				V_{CE}=2.0V, I_C=5mA
	$h_{FE(3)}$	25				V_{CE}=2.0V, I_C=500mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.5	V	I_C=500mA, I_B=50mA
Base-Emitter Voltage	V_{BE}			1.0	V	V_{CE}=2.0V, I_C=500mA
Transition Frequency	f_T		130		MHz	V_{CE}=5.0V, I_C=10mA, f=100MHz

Classification of $h_{FE(1)}$

Rank	BCX54	BCX54-10	BCX54-16
Range	63~250	63~160	100~250
Marking	BA	BC	BD

Curve Characteristics

Fig. 1 - Static Characteristics

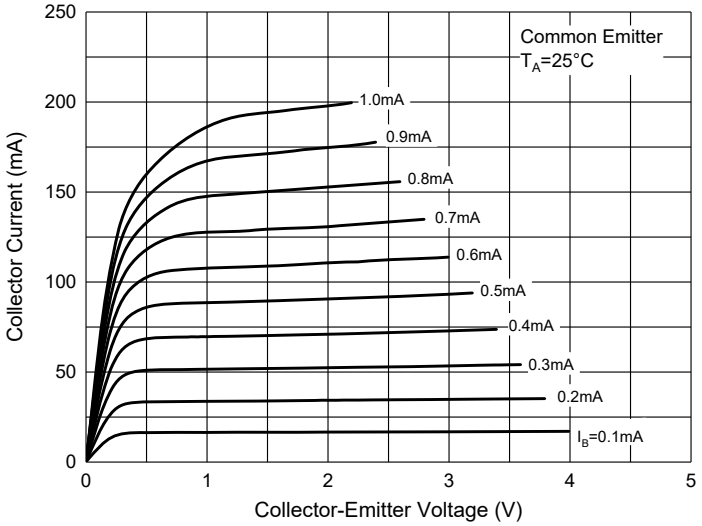


Fig. 2 - DC Current Gain Characteristics

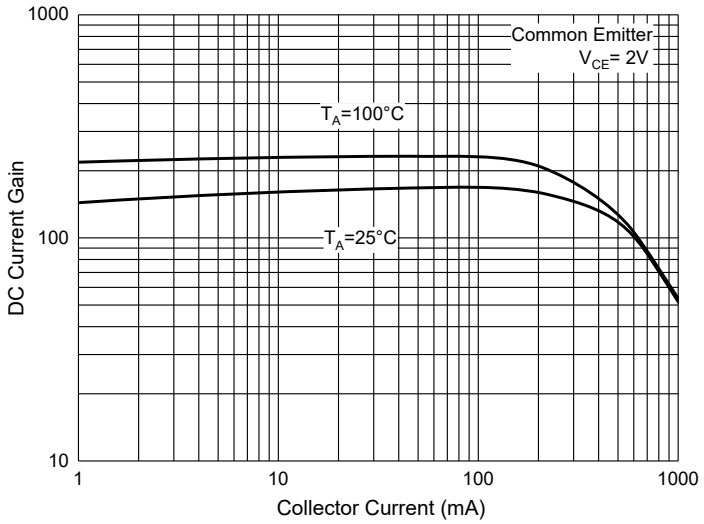


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

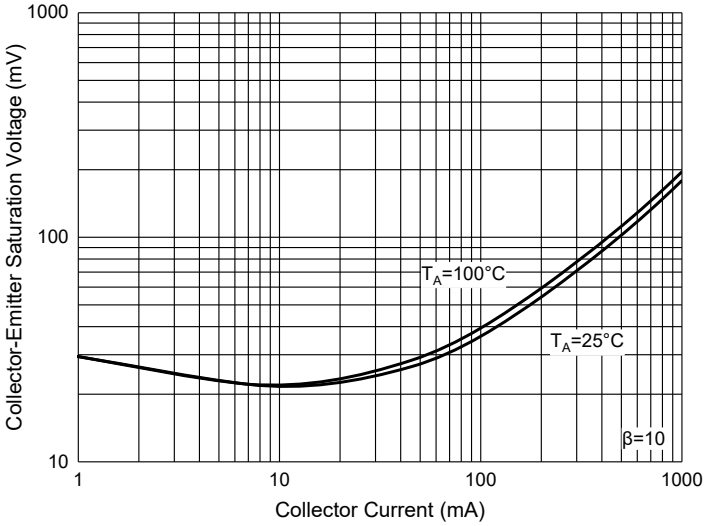


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

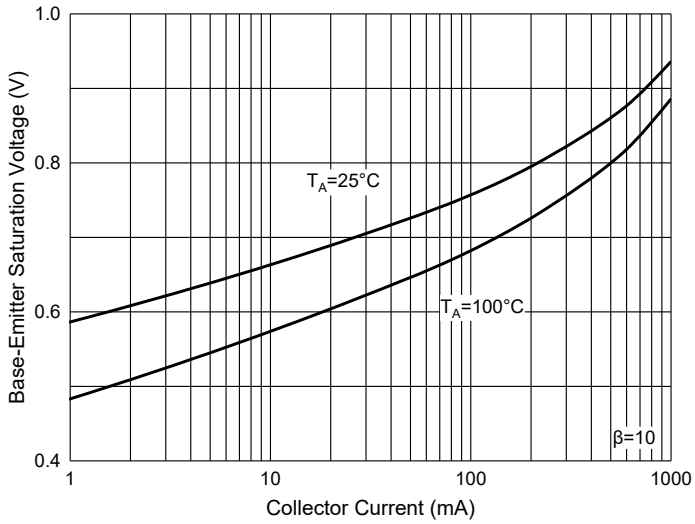


Fig. 5 - Base-Emitter Voltage Characteristics

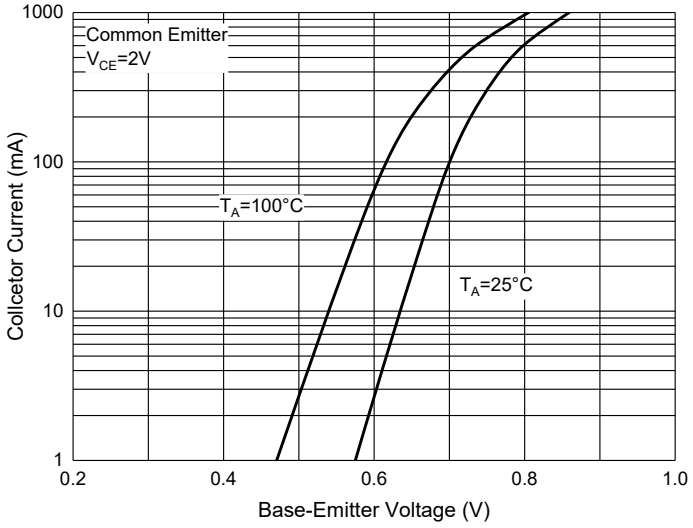
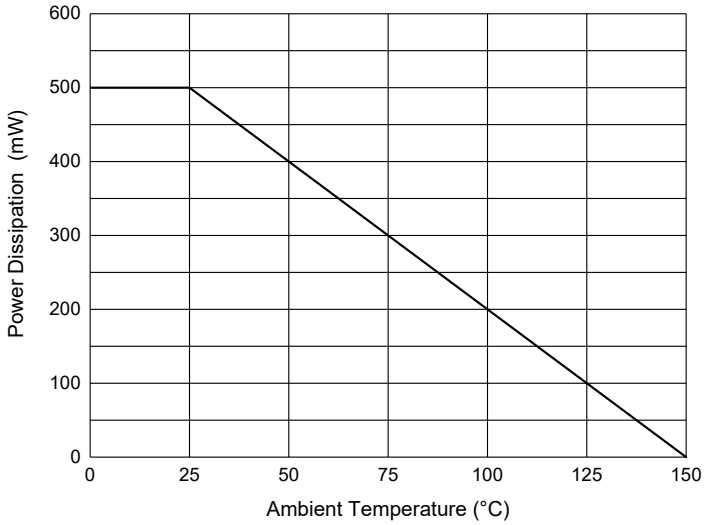


Fig. 6 - Power Derating Curve



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:1Kpcs/Reel
Part Number-TPQ4	Tape&Reel:1Kpcs/Reel

For packaging details, go to our website at https://www.mccsemi.com/pdf/productpackaging/SOT-89_Package_Rev_I.pdf

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