

## 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°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 250°C/W Junction to Ambient (Note1)

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	100	V
Collector-Emitter Voltage	$V_{CEO}$	80	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	1.0	A
Base Current	$I_B$	0.1	A
Peak Base Current ( $t_p < 1ms$ )	$I_{BM}$	0.2	A
Collector Power Dissipation	$P_C$	0.50 <sup>(Note2)</sup>	W
		0.95 <sup>(Note3)</sup>	
		1.35 <sup>(Note4)</sup>	

## Classification Of $h_{FE(1)}$

Rank	BCX56	BCX56-10	BCX56-16
Range of $h_{FE(1)}$	63-250	63-160	100-250
Marking	BH	BK	BL

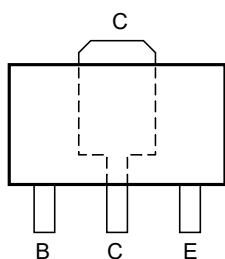
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Note:2. Device mounted on an FR4 PCB, Single-sided copper, tin-plated and standard footprint.

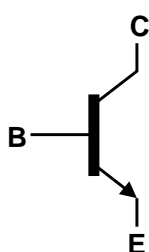
Note:3. Device mounted on an FR4 PCB, Single-sided copper, mounting pad for collector 1cm<sup>2</sup>

Note:4. Device mounted on an FR4 PCB, Single-sided copper, mounting pad for collector 6cm<sup>2</sup>

### Pin Configuration - Top View

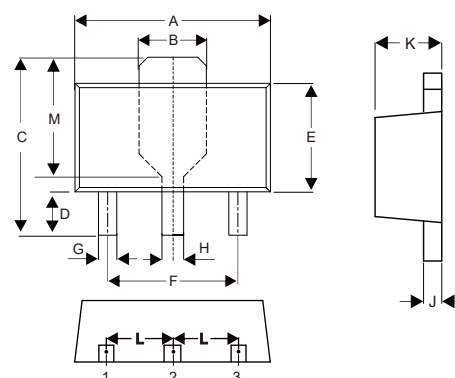


### Internal Structure



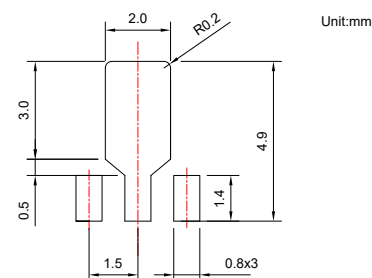
## NPN Plastic Encapsulate Transistors

### 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	$V_{(BR)CBO}$	100			V	$I_C=100\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	80			V	$I_C=10mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=10\mu A, I_C=0$
Collector-Base Cutoff Current	$I_{CBO}$			0.1	$\mu A$	$V_{CB}=30V, I_E=0$
Emitter-Base Cutoff Current	$I_{EBO}$			0.1	$\mu A$	$V_{EB}=5.0V, I_C=0$
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	$V_{CE}=5.0V, I_C=10mA, f=100MHz$

## Curve Characteristics

Fig. 1 - Static Characteristics

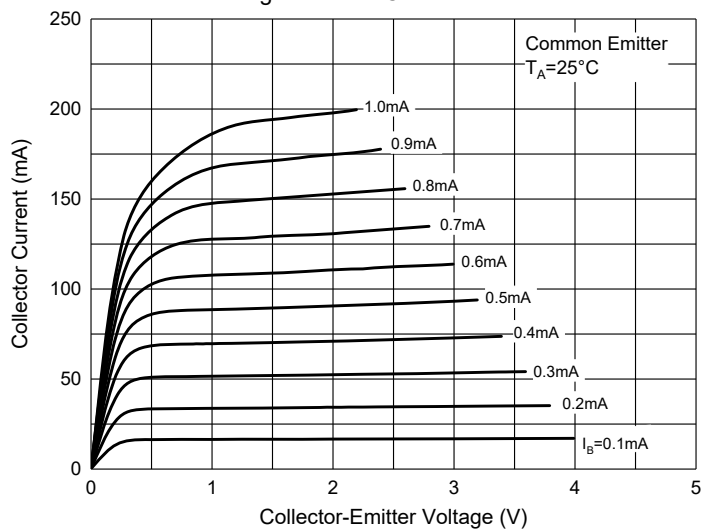


Fig. 2 - DC Current Gain Characteristics

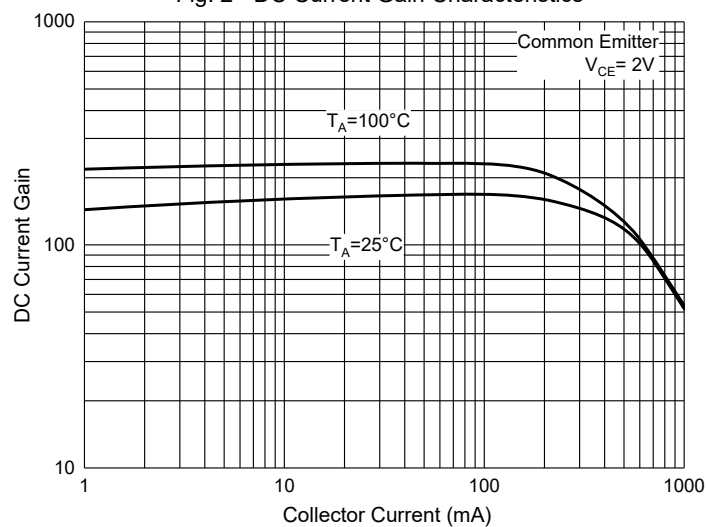


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

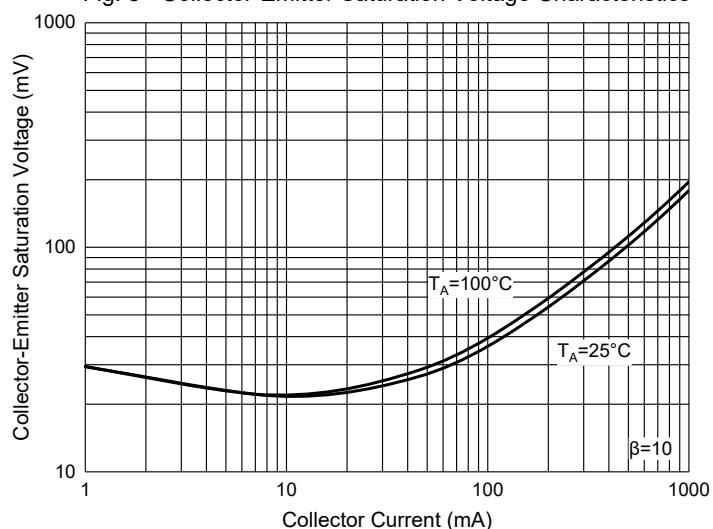


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

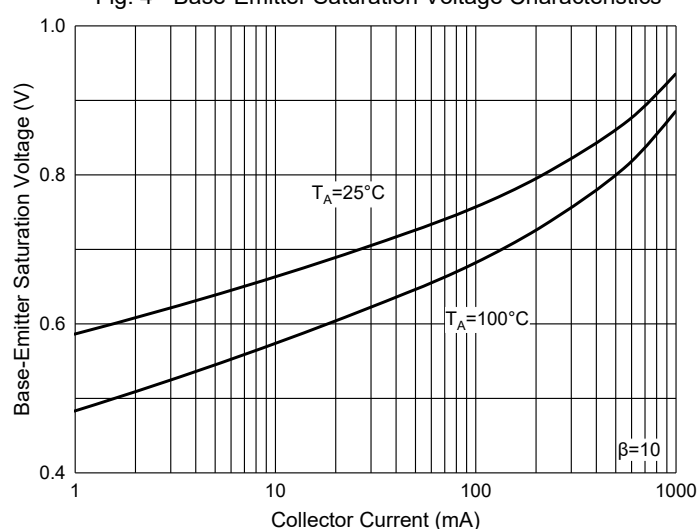


Fig. 5 - Base-Emitter Voltage Characteristics

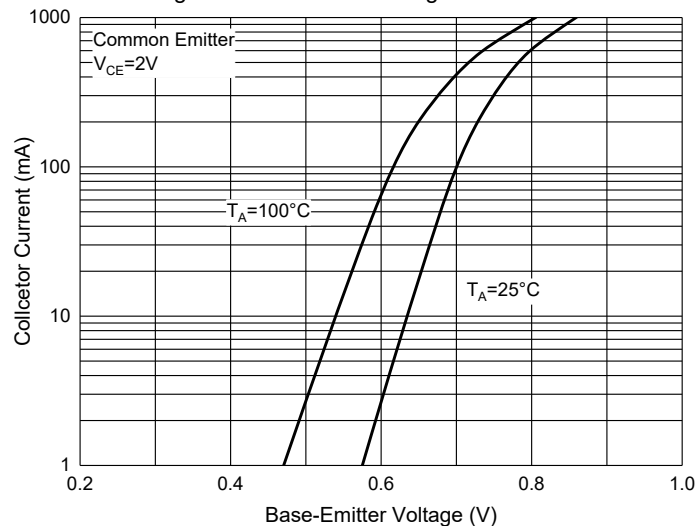
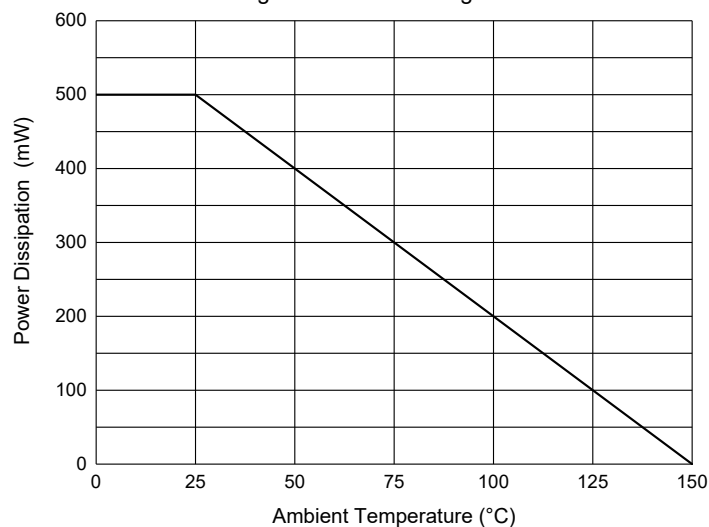


Fig. 6 - Power Derating Curve



## 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%20Package.pdf>

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