

Features

- AEC-Q101 Qualified
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

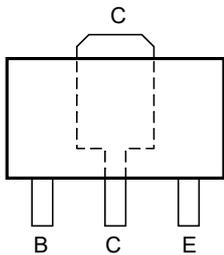
Maximum Ratings @ 25°C Unless Otherwise Specified

- 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 (Note 2)

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 (Note 2)	P_C	0.50	W

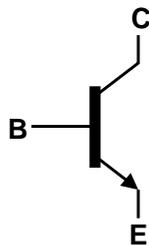
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Device mounted on FR-4 PCB 1.0×1.0×0.06 Inch, with standard footprint.

Pin Configuration - Top View



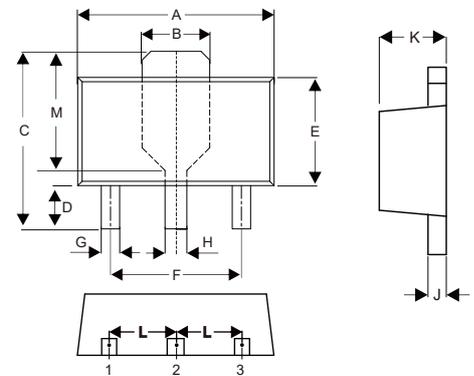
Marking: BL

Internal Structure



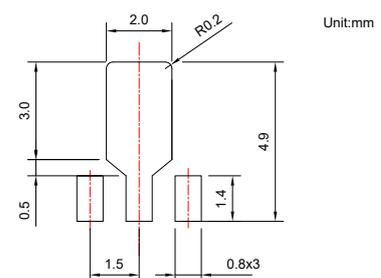
NPN Plastic Encapsulate Transistors

SOT-89



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	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	$h_{FE(1)}$	100		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

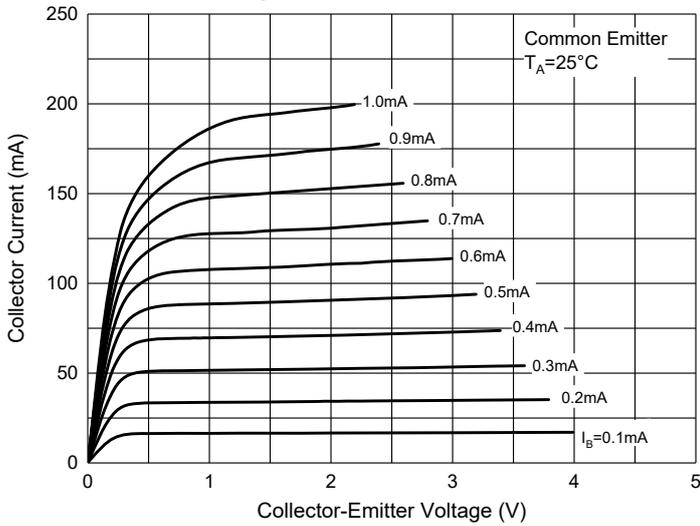


Fig. 2 - DC Current Gain Characteristics

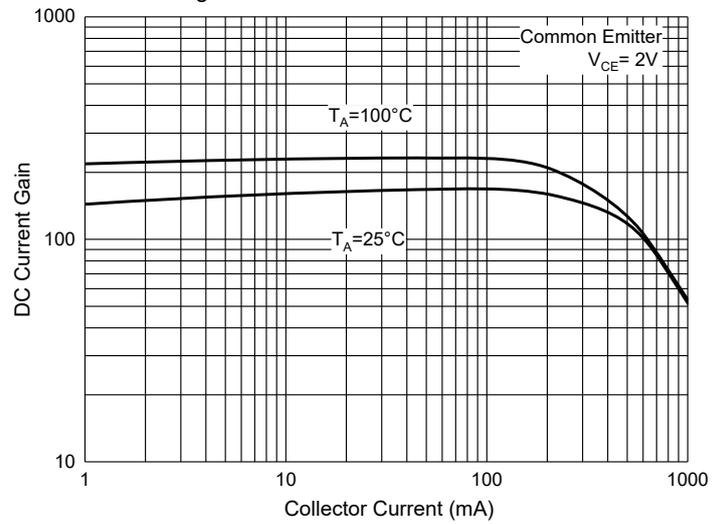


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

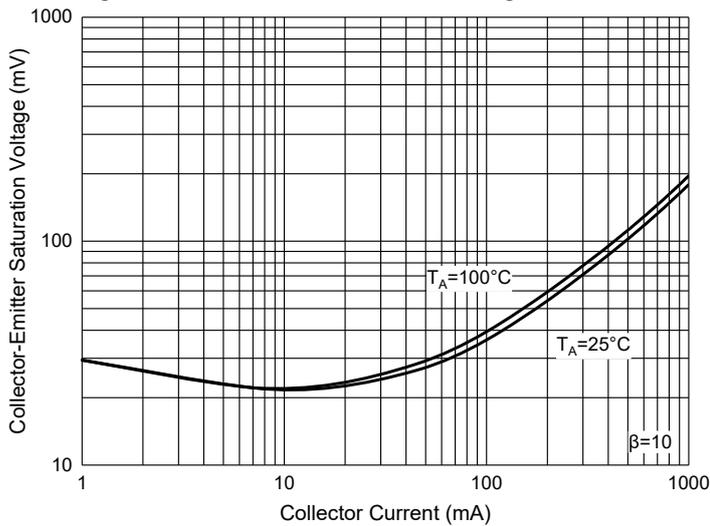


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

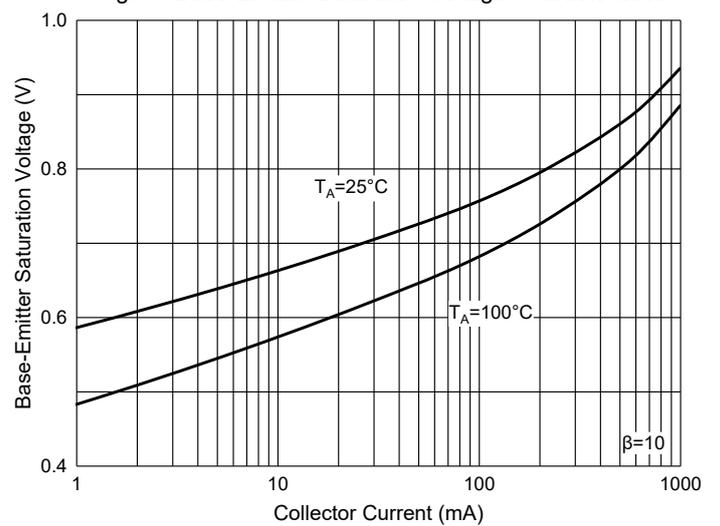


Fig. 5 - Base-Emitter Voltage Characteristics

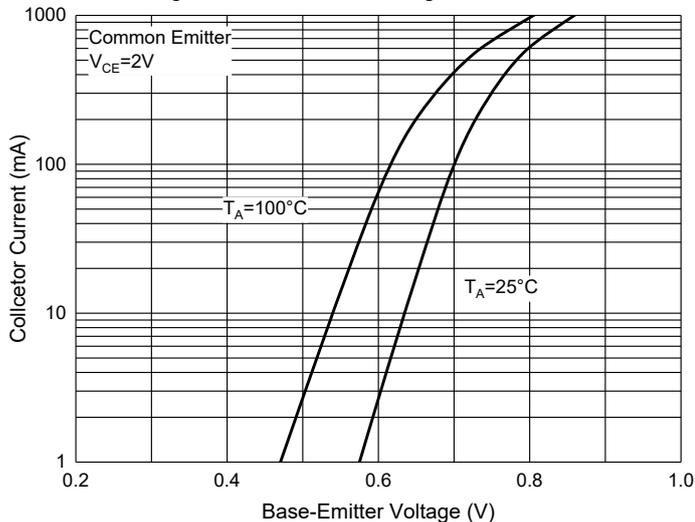
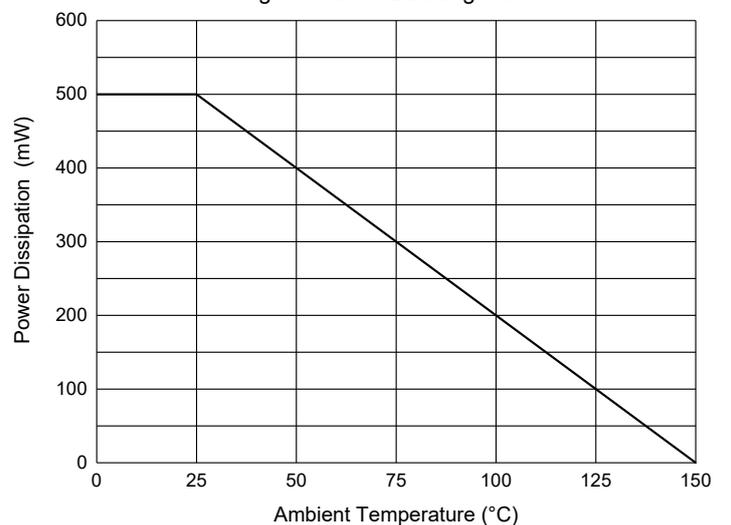
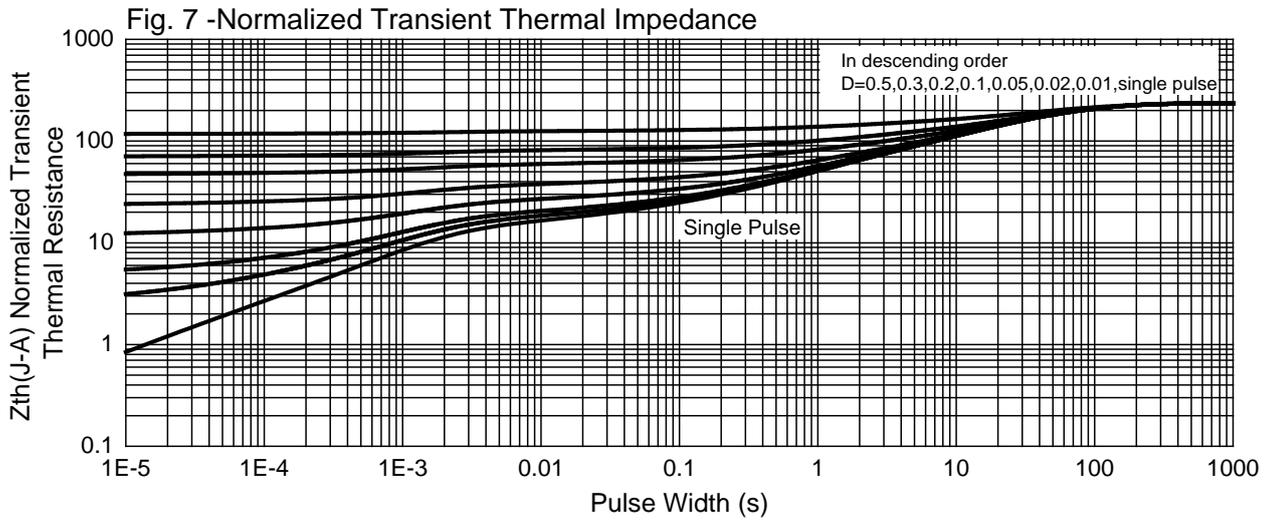


Fig. 6 - Power Derating Curve



Curve Characteristics



Note: 2. Device mounted on FR-4 PCB 1.0×1.0×0.06 Inch,with standard footprint

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_1.pdf

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