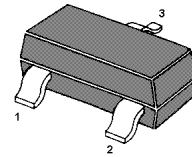


MMBT458

NPN Silicon Epitaxial Planar Transistor

for high voltage switching and amplifier applications.



1. Base 2. Emitter 3. Collector
TO-236 Plastic Package

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	400	V
Collector Emitter Voltage	V_{CEO}	400	V
Emitter Base Voltage	V_{EBO}	7	V
Collector Current	I_C	300	mA
Peak Collector Current, Pulsed	I_{CM}	1	A
Power Dissipation	P_{tot}	350	mW
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient ¹⁾	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$

¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.

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Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 10\text{ V}$, $I_C = 1\text{ mA}$	h_{FE}	100	-	-
at $V_{CE} = 10\text{ V}$, $I_C = 50\text{ mA}$	h_{FE}	100	300	-
at $V_{CE} = 10\text{ V}$, $I_C = 100\text{ mA}$	h_{FE}	15	-	-
Collector Base Cutoff Current at $V_{CB} = 320\text{ V}$	I_{CBO}	-	100	nA
Collector Emitter Cutoff Current at $V_{CE} = 320\text{ V}$	I_{CEO}	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 5.6\text{ V}$	I_{EBO}	-	100	nA
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	400	-	V
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	400	-	V
Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$	$V_{(BR)EBO}$	7	-	V
Collector Emitter Saturation Voltage at $I_C = 20\text{ mA}$, $I_B = 2\text{ mA}$	$V_{CE(sat)}$	-	200	mV
at $I_C = 50\text{ mA}$, $I_B = 5\text{ mA}$		-	500	mV
Base Emitter Saturation Voltage at $I_C = 50\text{ mA}$, $I_B = 5\text{ mA}$	$V_{BE(sat)}$	-	0.9	V
Base Emitter Turn-On Voltage at $V_{CE} = 10\text{ V}$, $I_C = 50\text{ mA}$	$V_{BE(on)}$	-	0.9	V
Collector Output Capacitance at $V_{CB} = 20\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	5	pF
Transition Frequency at $V_{CE} = 20\text{ V}$, $I_C = 10\text{ mA}$, $f = 20\text{ MHz}$	f_T	50	-	MHz

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Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

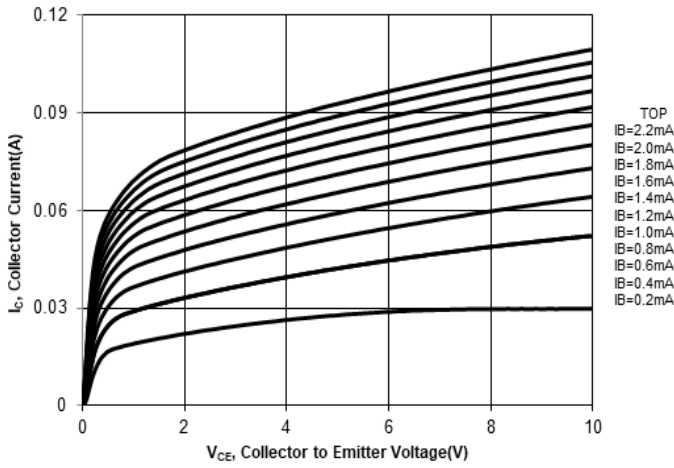


Fig. 2 Output Characteristics Curve

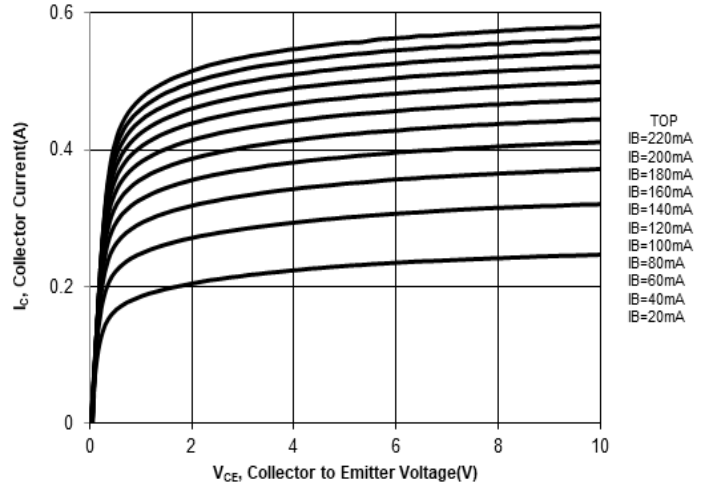


Fig. 3 Collector Current vs. Base to Emitter Voltage

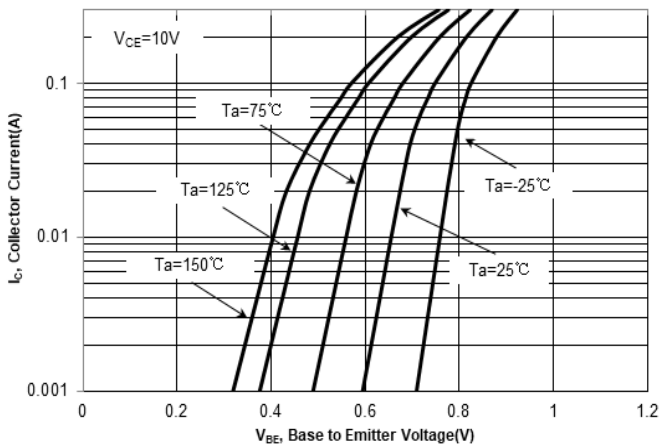
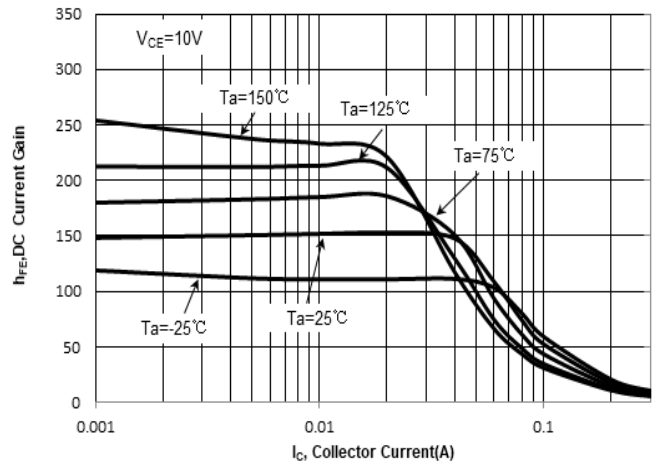


Fig. 4 DC Current Gain vs. Collector Current



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Electrical Characteristics Curves

Fig. 5 V_{BESAT} vs. Collector Current

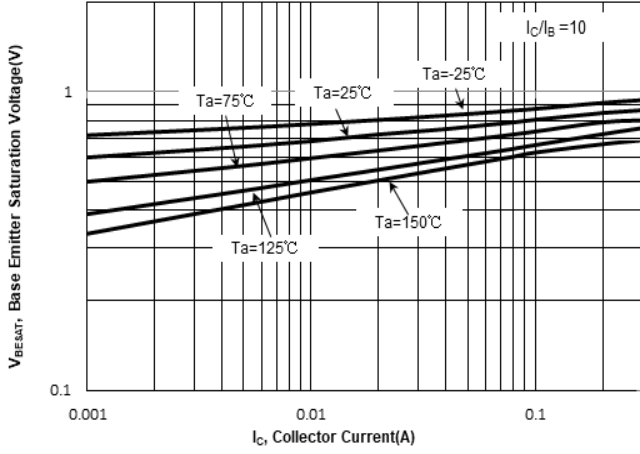


Fig. 6 V_{CESAT} vs. Collector Current

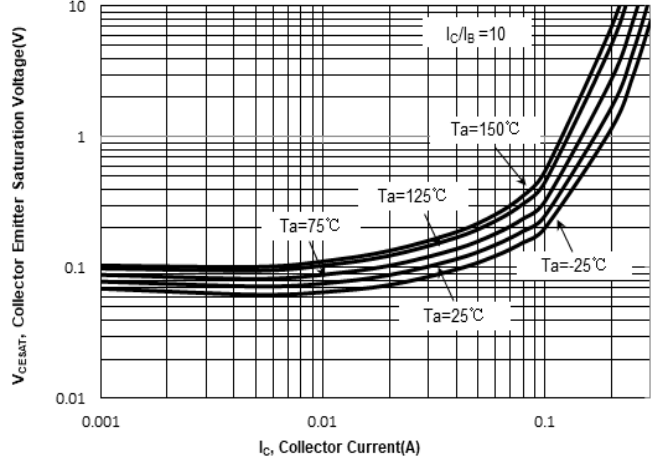


Fig. 7 Output Capacitance

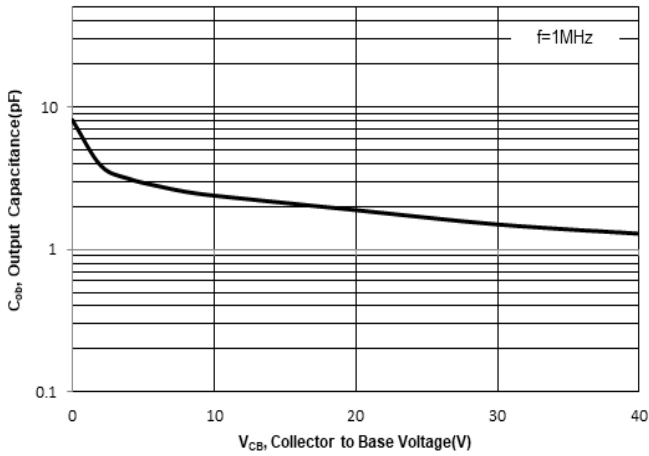
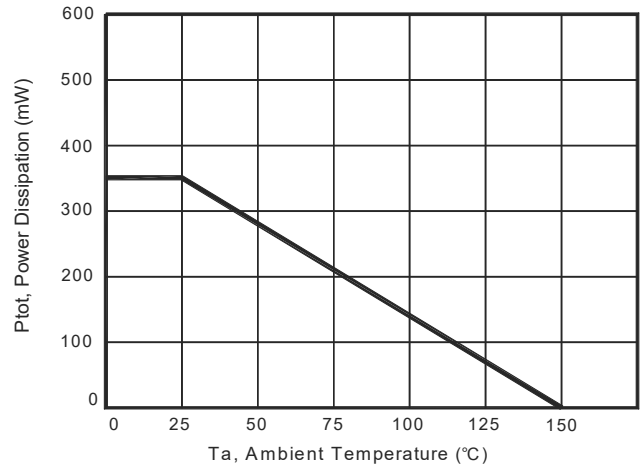


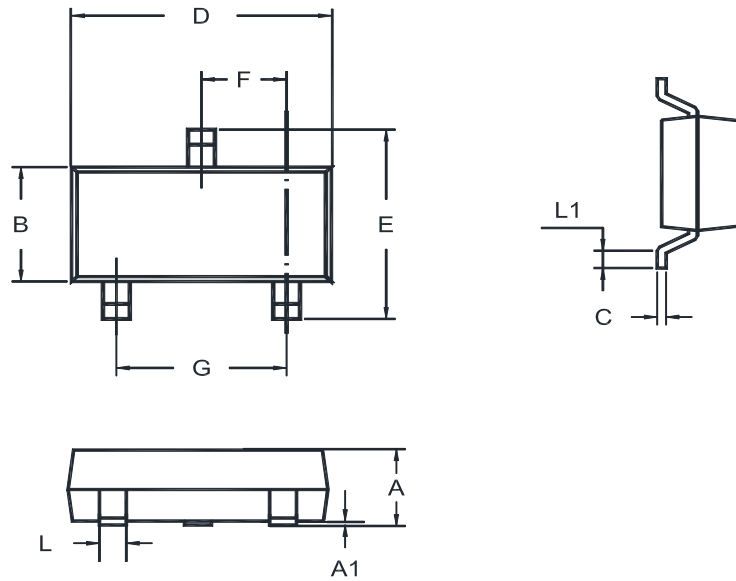
Fig. 8. Power Derating Curve



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TO-236

Package Outline (Dimensions in mm)



Unit	A	A1	B	C	D	E	F	G	L	L1
mm	1.20	0.100	1.40	0.19	3.04	2.6	1.02	2.04	0.51	0.2
	0.89	0.013	1.20	0.08	2.80	2.2	0.89	1.78	0.37	MIN

Recommended Soldering Footprint

