

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-15	V
Collector-Emitter Voltage	$V_{CEO}$	-12	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Collector Current - Continuous	$I_C$	-500	mA
Peak Pulse Collector Current	$I_{CM}$	-1	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4) @ $T_A = 25^\circ\text{C}$	$P_D$	150	mW
Thermal Resistance, Junction to Ambient (Note 4) @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

Notes: 4. Device mounted on FR-4 PCB with minimum recommended pad layout.

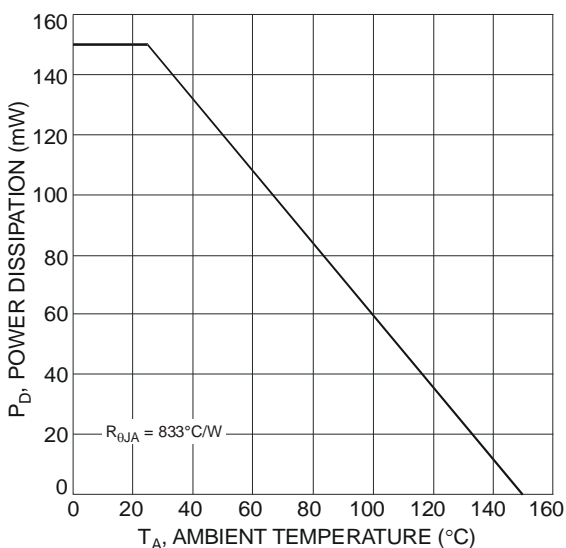


Fig. 1 Power Dissipation vs. Ambient Temperature

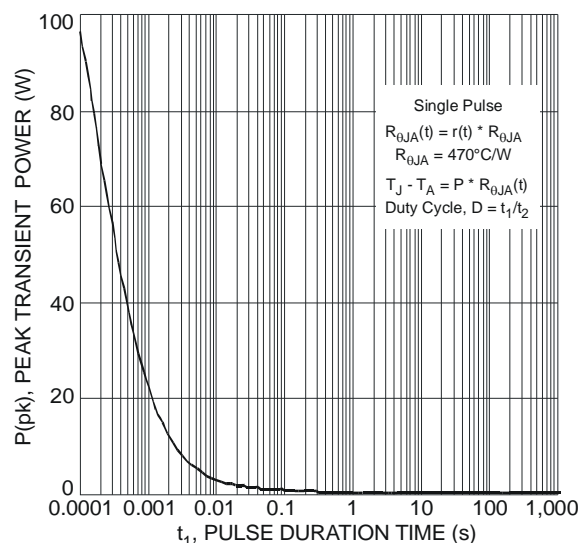


Fig. 2 Single Pulse Maximum Power Dissipation

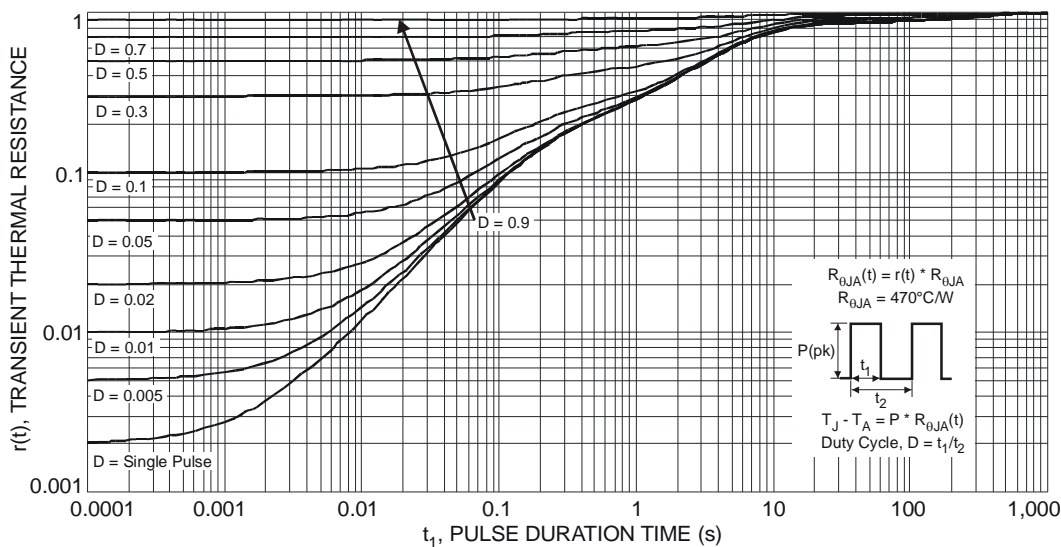


Fig. 3 Transient Thermal Response

# Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-15	—	—	V	I <sub>C</sub> = -10μA, I <sub>E</sub> = 0
Collector-Emitter Breakdown Voltage (Note 5)	BV <sub>CEO</sub>	-12	—	—	V	I <sub>C</sub> = -1mA, I <sub>B</sub> = 0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-6	—	—	V	I <sub>E</sub> = -10μA, I <sub>C</sub> = 0
Collector Cutoff Current	I <sub>CBO</sub>	—	—	-100 -50	nA μA	V <sub>CB</sub> = -15V, I <sub>E</sub> = 0 V <sub>CB</sub> = -15V, I <sub>E</sub> = 0, T <sub>A</sub> = 150°C
Emitter Cutoff Current	I <sub>EBO</sub>	—	—	-100	nA	V <sub>EB</sub> = -6V, I <sub>C</sub> = 0
DC Current Gain (Note 5)	h <sub>FE</sub>	270	—	680	—	V <sub>CE</sub> = -2V, I <sub>C</sub> = -10mA
Collector-Emitter Saturation Voltage (Note 5)	V <sub>CE(sat)</sub>	—	—	-250	mV	I <sub>C</sub> = -200mA, I <sub>B</sub> = -10mA
Output Capacitance	C <sub>obo</sub>	—	7.4	—	pF	V <sub>CB</sub> = -10V, f = 1.0MHz
Current Gain-Bandwidth Product	f <sub>T</sub>	—	260	—	MHz	V <sub>CE</sub> = -2V, I <sub>C</sub> = -10mA, f = 100MHz
Turn-On Time	t <sub>on</sub>	—	40	—	ns	V <sub>CC</sub> = -6V I <sub>C</sub> = -200mA, I <sub>B1</sub> = I <sub>B2</sub> = -10mA
Delay Time	t <sub>d</sub>	—	18	—	ns	
Rise Time	t <sub>r</sub>	—	22	—	ns	
Turn-Off Time	t <sub>off</sub>	—	106	—	ns	
Storage Time	t <sub>s</sub>	—	87	—	ns	
Fall Time	t <sub>f</sub>	—	19	—	ns	

Notes: 5. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

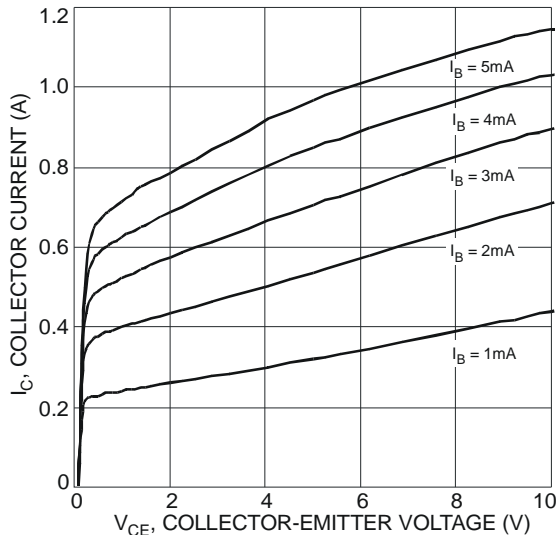


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

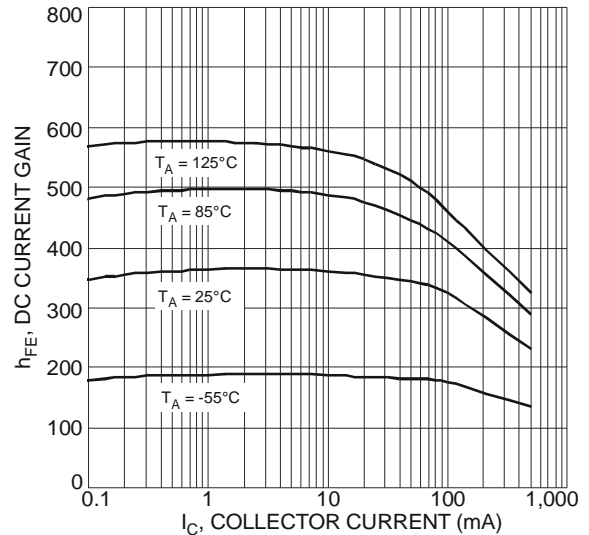


Fig. 5 Typical DC Current Gain vs. Collector Current

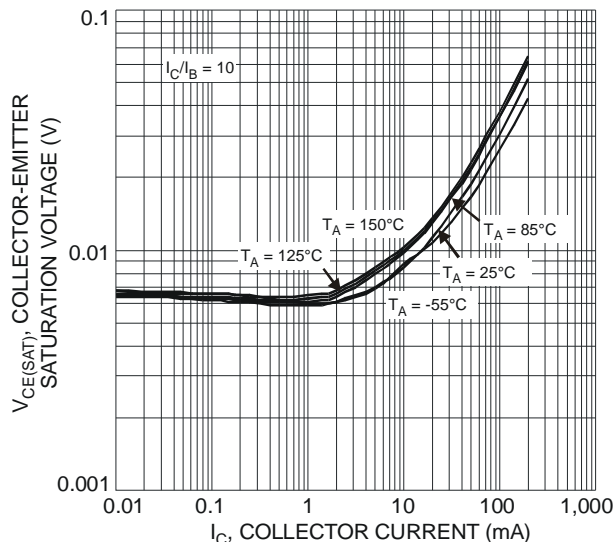


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

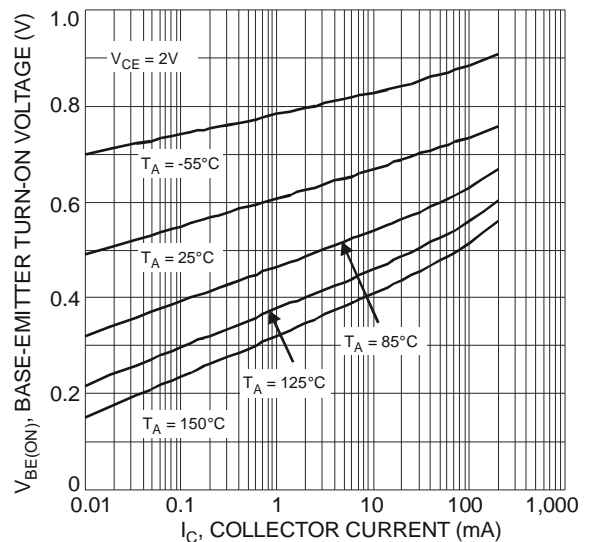


Fig. 7 Typical Base-Emitter Turn-On Voltage vs. Collector Current

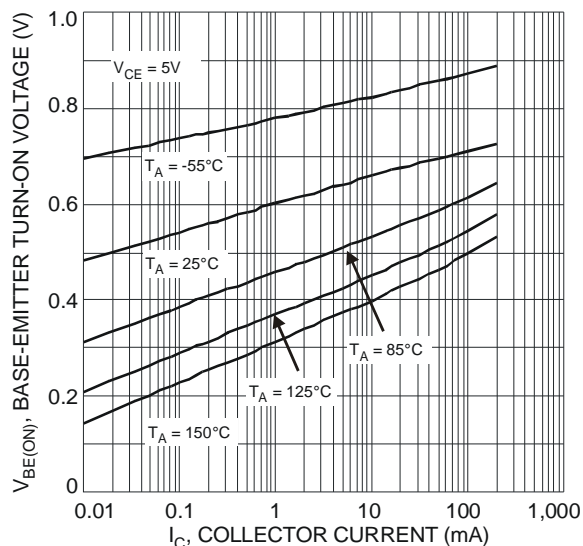


Fig. 8 Typical Base-Emitter Turn-On Voltage vs. Collector Current

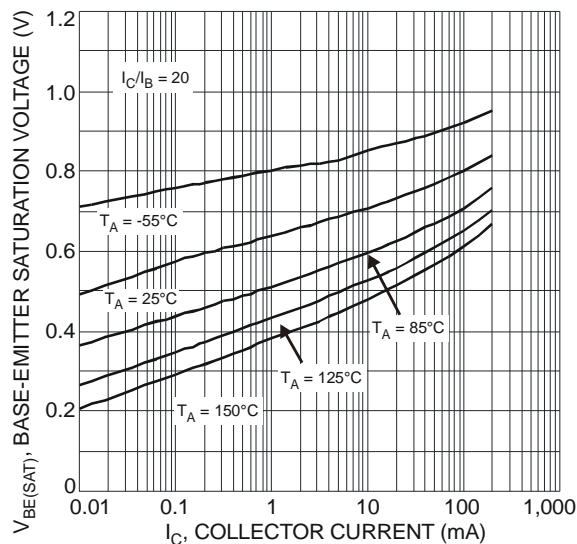


Fig. 9 Typical Base-Emitter Saturation Voltage vs. Collector Current

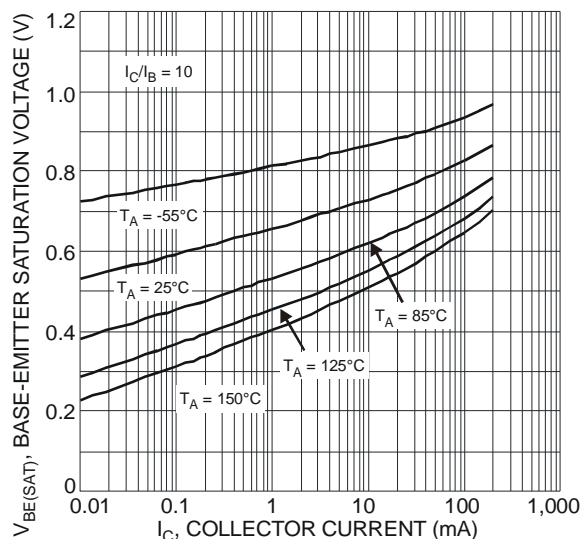


Fig. 10 Typical Base-Emitter Saturation Voltage vs. Collector Current

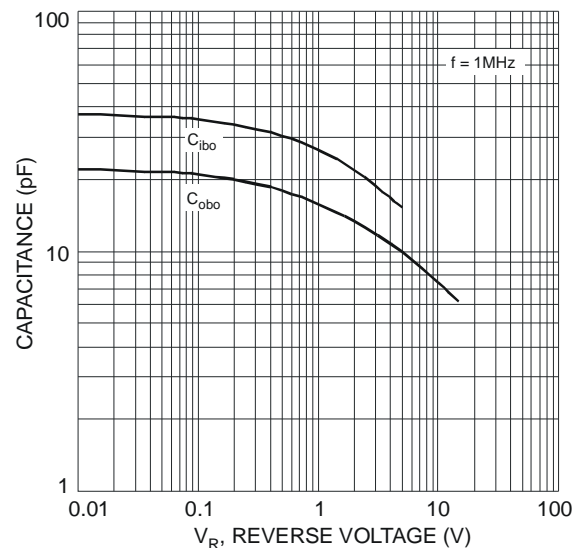
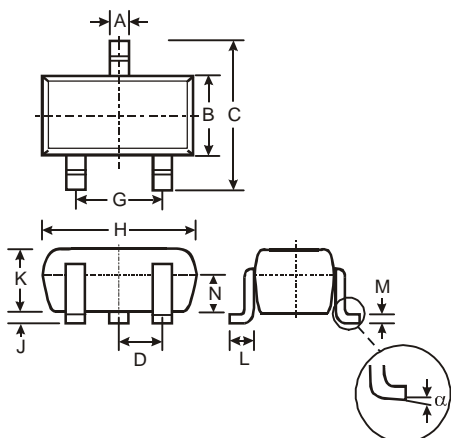


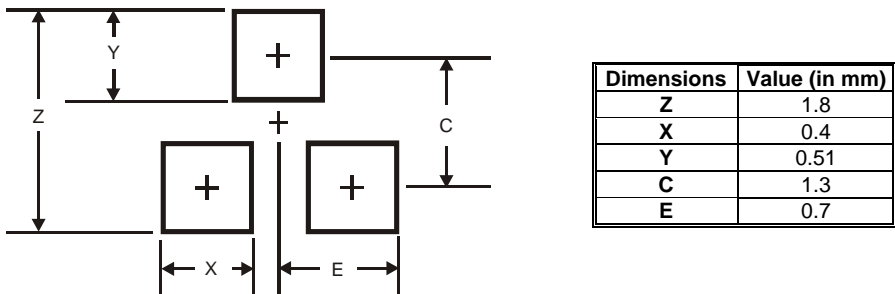
Fig. 11 Typical Capacitance Characteristics

## Package Outline Dimensions



SOT-523			
Dim	Min	Max	Typ
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
J	0.00	0.10	0.05
K	0.60	0.80	0.75
L	0.10	0.30	0.22
M	0.10	0.20	0.12
N	0.45	0.65	0.50
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



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