Absolute Maximum Ratings (@T_A = 25°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}	-7	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 5) @ T_A = 25°C	P_D	150	mW
Thermal Resistance, Junction to Ambient (Note 5) @ T_A = 25°C	$R_{\theta JA}$	833	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Note: 5. Device mounted on FR-4 PCB with minimum recommended pad layout.

ESD Ratings (Note 6)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Note: 6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

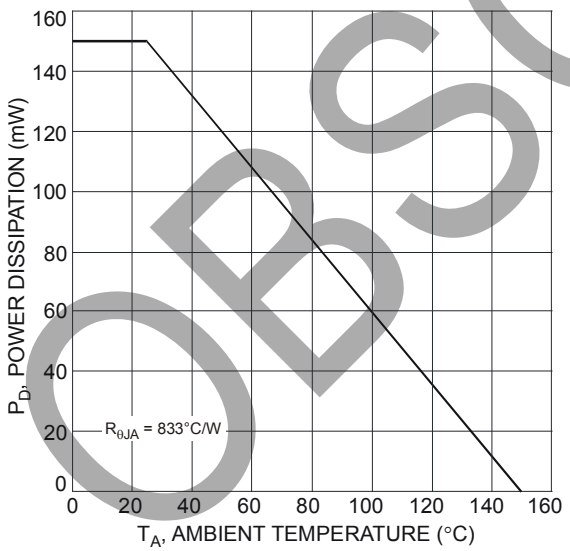


Fig. 1 Power Dissipation vs. Ambient Temperature

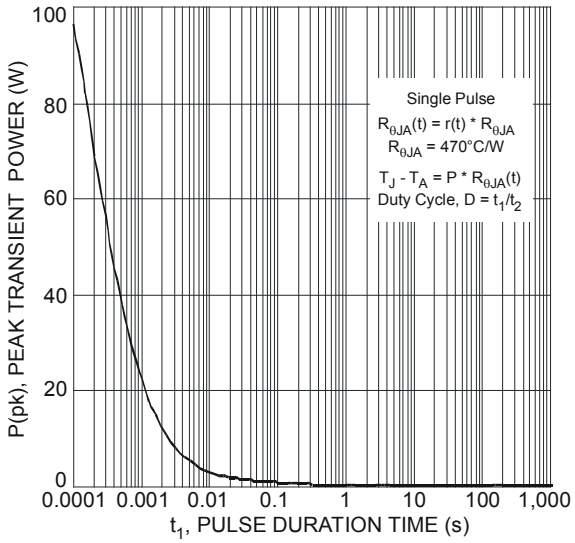


Fig. 2 Single Pulse Maximum Power Dissipation

Thermal Characteristics and Derating Information (continued)

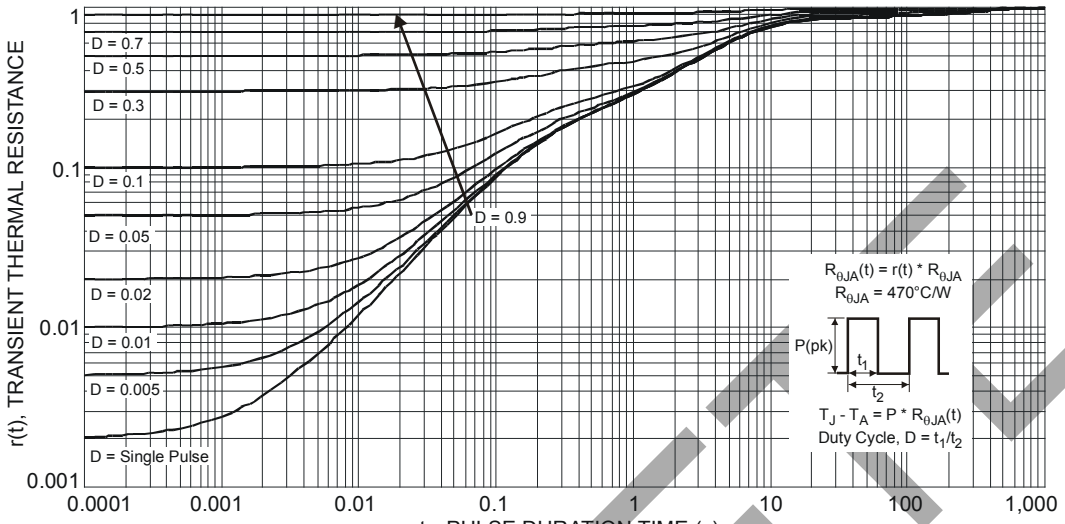


Fig. 3 Transient Thermal Response

Electrical Characteristics (@T_A = 25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-15	—	—	V	I_C = -100μA, I_E = 0
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	-12	—	—	V	I_C = -1mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	—	—	V	I_E = -100μA, I_C = 0
Collector Cutoff Current	I_{CBO}	—	—	-20 -50	nA μA	V_{CB} = -15V, I_E = 0 V_{CB} = -15V, I_E = 0, T_A = 150°C
Emitter Cutoff Current	I_{EBO}	—	—	-20	nA	V_{EB} = -6V, I_C = 0
DC Current Gain (Note 7)	h_{FE}	270	—	680	—	V_{CE} = -2V, I_C = -10mA
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(sat)}$	—	—	-250	mV	I_C = -200mA, I_B = -10mA
Output Capacitance	C_{obo}	—	7.4	—	pF	V_{CB} = -10V, f = 1.0MHz
Current Gain-Bandwidth Product	f_T	—	260	—	MHz	V_{CE} = -2V, I_C = -10mA, f = 100MHz
Turn-On Time	t_{on}	—	40	—	ns	V_{CC} = -6V I_C = -200mA, I_{B1} = -I_{B2} = -10mA
Delay Time	t_d	—	18	—	ns	
Rise Time	t_r	—	22	—	ns	
Turn-Off Time	t_{off}	—	106	—	ns	
Storage Time	t_s	—	87	—	ns	
Fall Time	t_f	—	19	—	ns	

Note: 7. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤2%.

Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

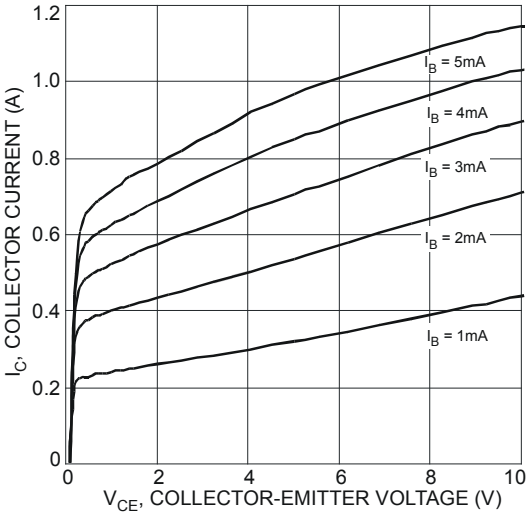


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

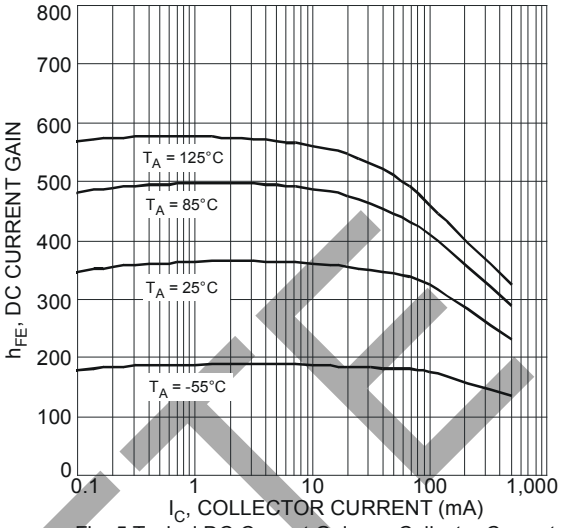


Fig. 5 Typical DC Current Gain vs. Collector Current

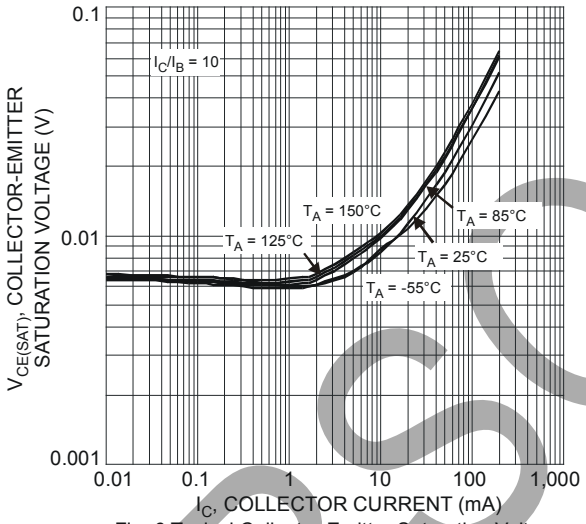


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

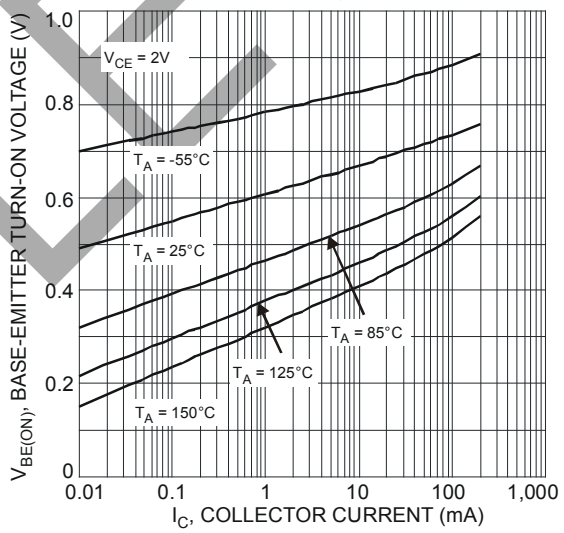


Fig. 7 Typical Base-Emitter Turn-On Voltage vs. Collector Current

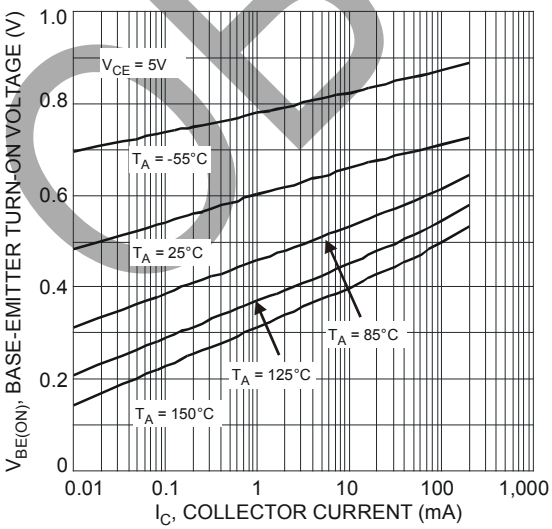


Fig. 8 Typical Base-Emitter Turn-On Voltage vs. Collector Current

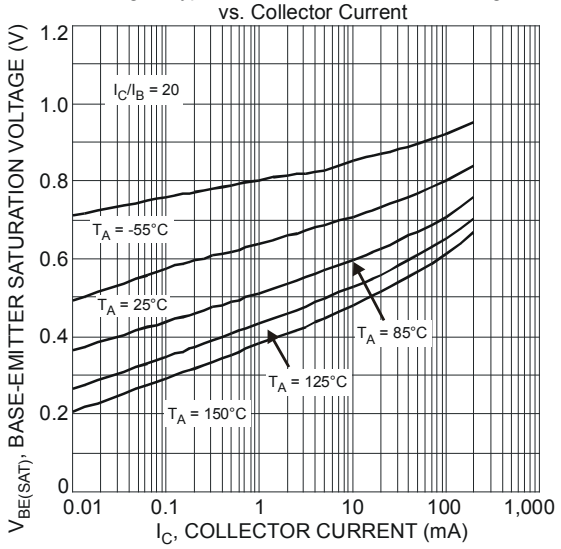


Fig. 9 Typical Base-Emitter Saturation Voltage vs. Collector Current

Typical Electrical Characteristics (continued)

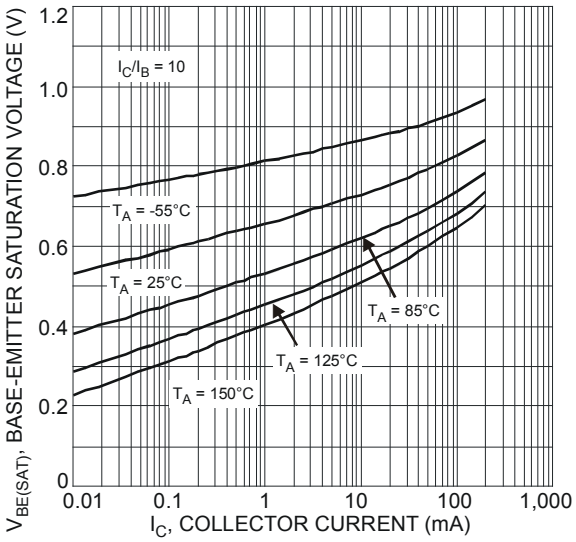
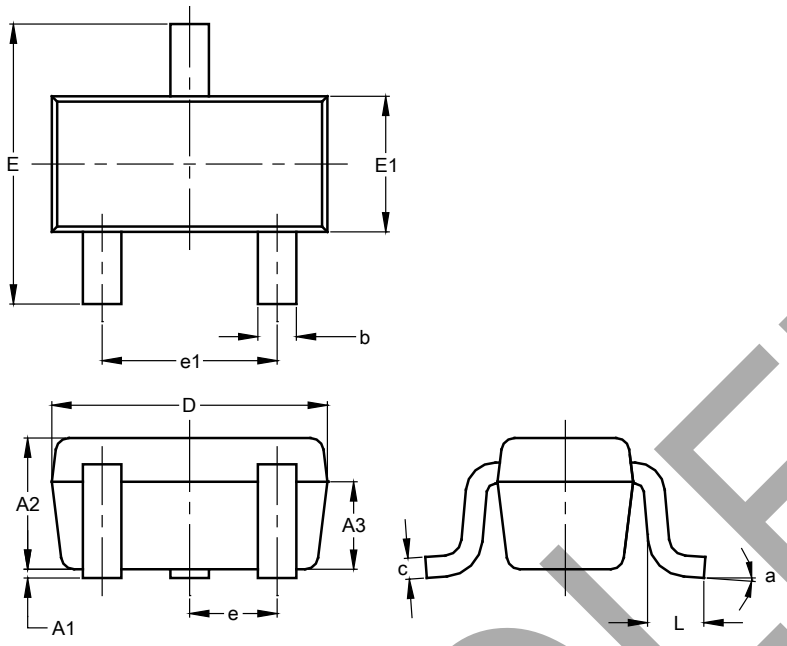


Fig. 10 Typical Base-Emitter Saturation Voltage vs. Collector Current

Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT523

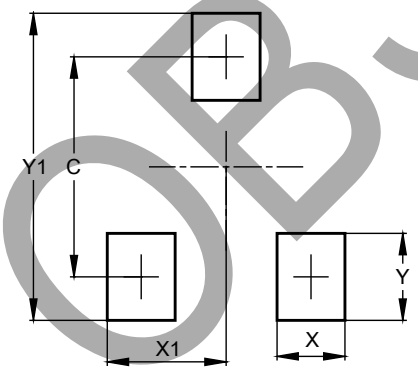


SOT523			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.60	0.80	0.75
A3	0.45	0.65	0.50
b	0.15	0.30	0.22
c	0.10	0.20	0.12
D	1.50	1.70	1.60
E	1.45	1.75	1.60
E1	0.75	0.85	0.80
e	0.50 BSC		
e1	0.90	1.10	1.00
L	0.20	0.40	0.33
a	0°	--	8°
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT523



Dimensions	Value
C	1.29
X	0.40
X1	0.70
Y	0.51
Y1	1.80

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