Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-400	V
Collector-Emitter Voltage	V_{CEO}	-400	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-0.5	A
Peak Pulse Current	I_{CM}	-1	A
Base Current	I_B	-250	mA

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

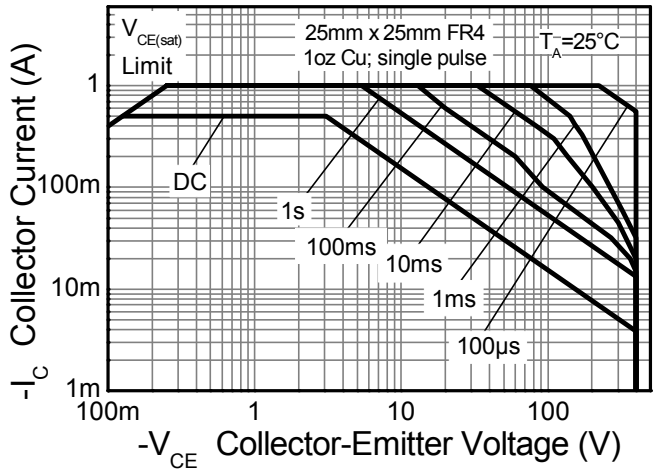
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1.5	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	83	°C/W
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	10.4	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 7)

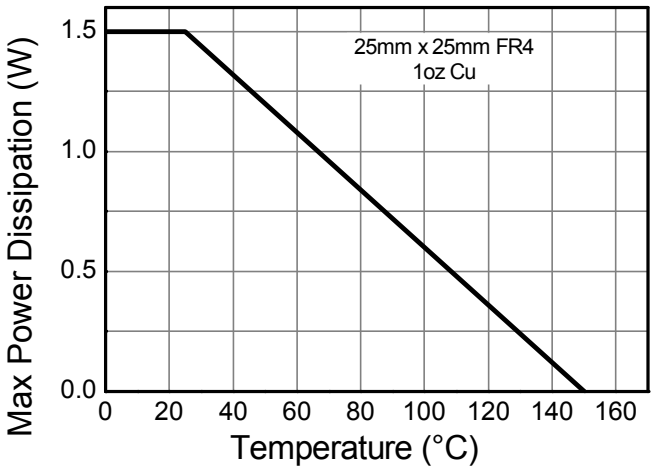
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
5. For a device mounted with the exposed collector pad on 25mm x 25mm 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Thermal resistance from junction to solder-point (on the exposed collector pad).
7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

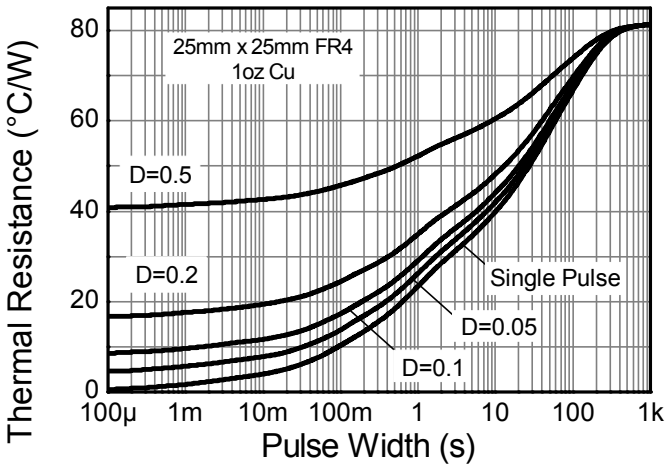
Thermal Characteristics and Derating information



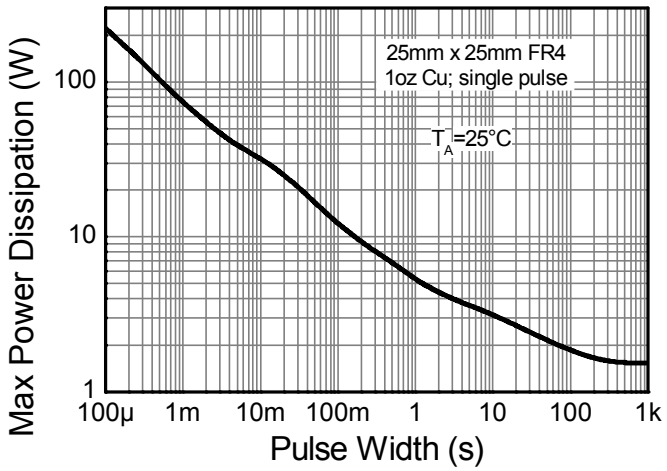
Safe Operating Area



Derating Curve



Transient Thermal Impedance



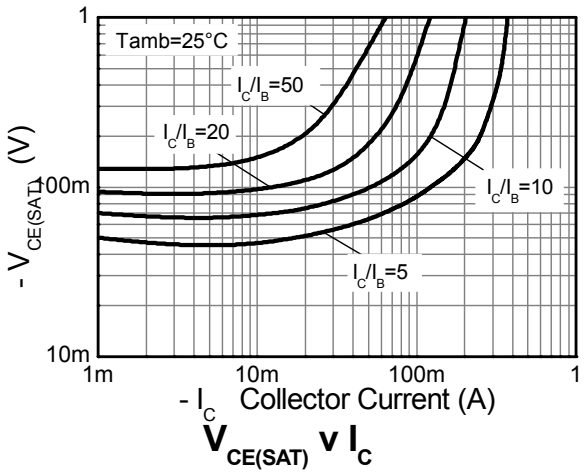
Pulse Power Dissipation

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

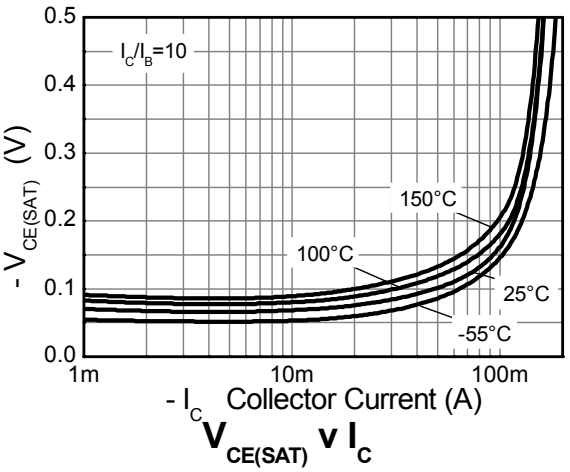
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-400	-	-	V	I_C = -100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	-400	-	-	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-	-	V	I_E = -100μA
Collector-Emitter Cut-off Current	I_{CES}	-	-	-100	nA	V_{CE} = -320V
Collector Cut-off Current	I_{CBO}	-	-	-100	nA	V_{CB} = -320V
Emitter Cut-off Current	I_{EBO}	-	-	-100	nA	V_{EB} = -6V
Static Forward Current Transfer Ratio (Note 8)	h_{FE}	140 140	-	450 400	-	I_C = -20mA, V_{CE} = -5V I_C = -100mA, V_{CE} = -5V
Collector-Emitter saturation Voltage (Note 8)	$V_{CE(sat)}$	-	-	-250 -400	mV	I_C = -100mA, I_B = -10mA I_C = -200mA, I_B = -40mA
Base-Emitter saturation Voltage (Note 8)	$V_{BE(sat)}$	-	-0.75	-0.9	V	I_C = -100mA, I_B = -10mA
Base-Emitter Turn-On Current (Note 8)	$V_{BE(on)}$	-	-	-0.8	V	I_C = -200mA, V_{CE} = -10V
Transition frequency	f_T	-	75	-	MHz	I_C = -50mA, V_{CE} = -5V, f = 50MHz
Collector Output Capacitance	C_{obo}	-	19	-	pF	V_{CB} = -10V, I_E = 0, f = 1MHz
Delay Time	$t_{(d)}$	-	89	-	ns	V_{CC} = -200V, I_C = -100mA, I_{B1} = -10mA, I_{B2} = 20mA
Rise Time	$t_{(r)}$	-	111	-	ns	
Storage Time	$t_{(s)}$	-	2165	-	ns	
Fall Time	$t_{(f)}$	-	185	-	ns	

Note: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

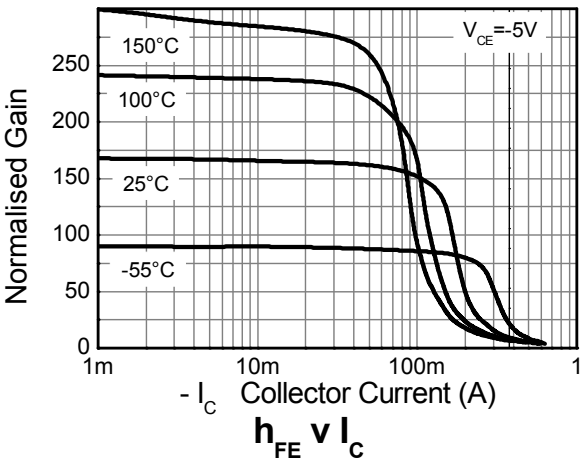
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



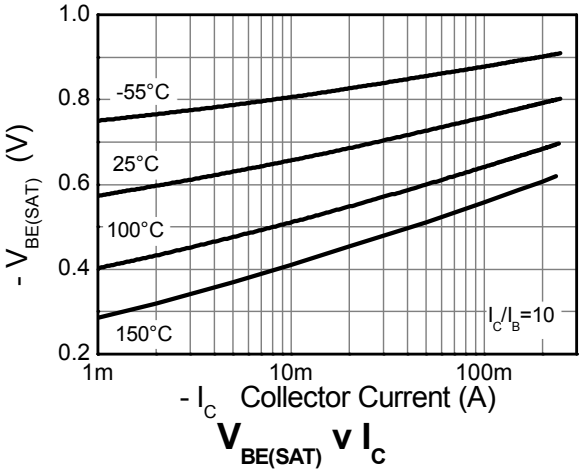
$V_{CE(SAT)}$ v I_C



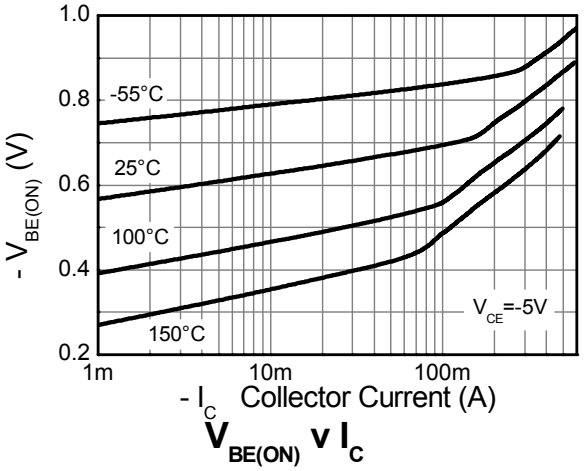
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C



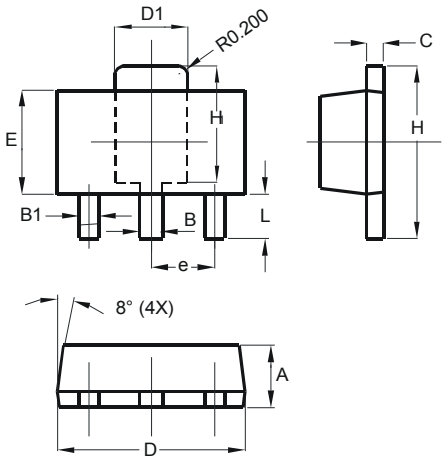
$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

Package Outline Dimensions

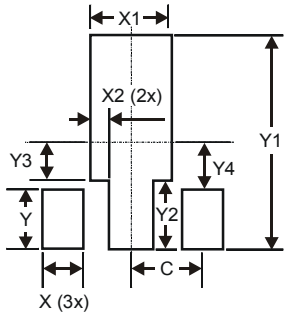
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT89		
Dim	**Min**	**Max**
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
e	1.50 Typ	
H	3.94	4.25
H1	2.63	2.93
L	0.89	1.20
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
X	0.900
X1	1.733
X2	0.416
Y	1.300
Y1	4.600
Y2	1.475
Y3	0.950
Y4	1.125
C	1.500

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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