

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-50	V
Emitter-Base Voltage	V _{EBO}	-6	V
Peak Pulse Current	I _{CM}	-6	A
Continuous Collector Current	I _C	-3	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	0.9	W
Thermal Resistance, Junction to Ambient Air (Note 6)	R _{θJA}	139	°C/W
Power Dissipation (Note 7)	P _D	2	W
Thermal Resistance, Junction to Ambient Air (Note 7)	R _{θJA}	62.5	°C/W
Thermal Resistance, Junction to Lead (Note 8)	R _{θJL}	5.3	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 9)

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

- Notes:
6. Device mounted on FR-4 PCB with minimum recommended pad layout.
 7. Device mounted on FR-4 PCB with 1 inch² copper pad layout.
 8. Thermal resistance from junction to solder-point (on the exposed collector pad).
 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

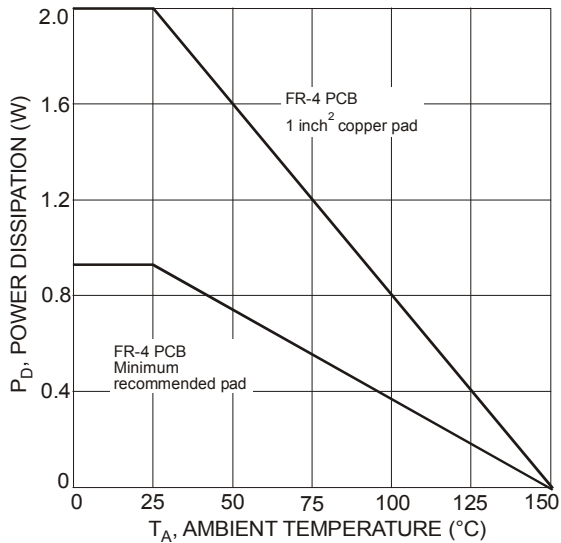


Fig. 1 Power Dissipation vs. Ambient Temperature

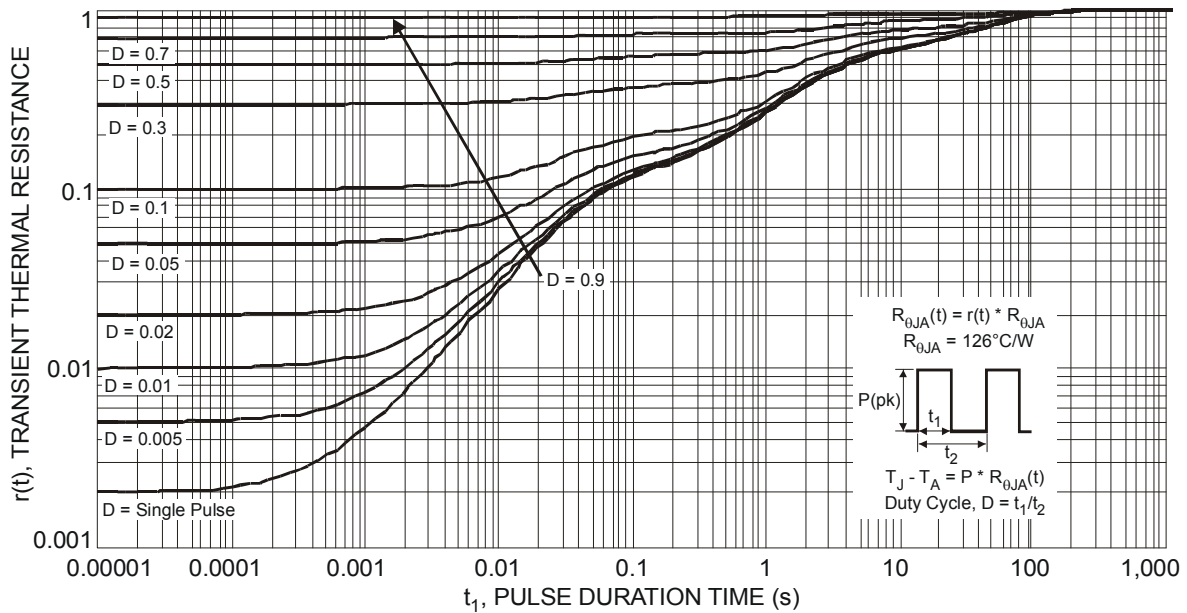
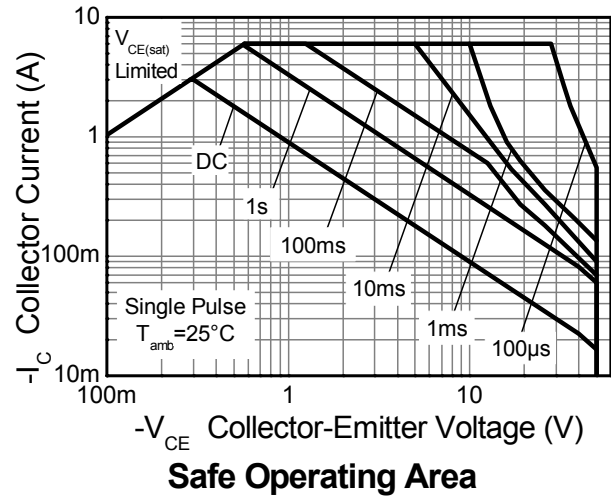


Fig. 10 Transient Thermal Response

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Conditions
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	$I_C = -50\mu\text{A}$, $I_E = 0$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CEO}	-50	—	—	V	$I_C = -1\text{mA}$, $I_B = 0$
Emitter-Base Breakdown Voltage	BV_{EBO}	-6	—	—	V	$I_E = -50\mu\text{A}$, $I_C = 0$
Collector Cut-Off Current	I_{CBO}	—	—	-0.1	μA	$V_{CB} = -50\text{V}$, $I_E = 0$
Emitter Cut-Off Current	I_{EBO}	—	—	-0.1	μA	$V_{EB} = -5\text{V}$, $I_C = 0$
ON CHARACTERISTICS (Note 10)						
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	-100	-350	mV	$I_C = -1\text{A}$, $I_B = -50\text{mA}$
DC Current Gain	h_{FE}	82	—	270	—	$V_{CE} = -2\text{V}$, $I_C = -500\text{mA}$
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	—	27	—	pF	$V_{CB} = -10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$
Current Gain-Bandwidth Product	f_T	—	160	—	MHz	$V_{CE} = -2\text{V}$, $I_C = -100\text{mA}$, $f = 100\text{MHz}$

Notes: 10. Measured under pulsed conditions. Pulse width = $300\mu\text{s}$. Duty cycle $\leq 2\%$.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

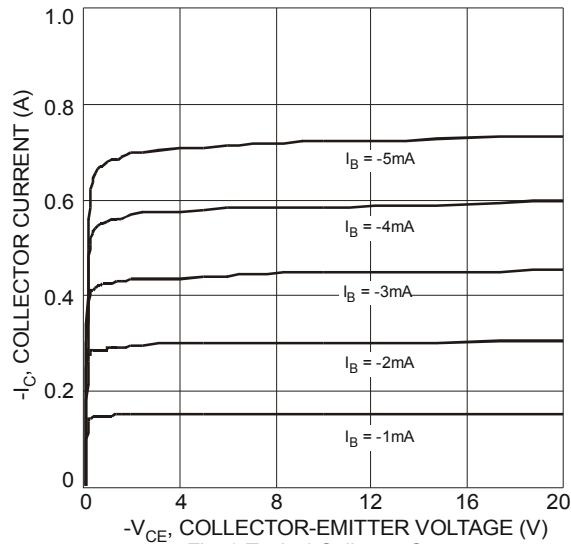


Fig. 3 Typical Collector Current vs. Collector-Emitter Voltage

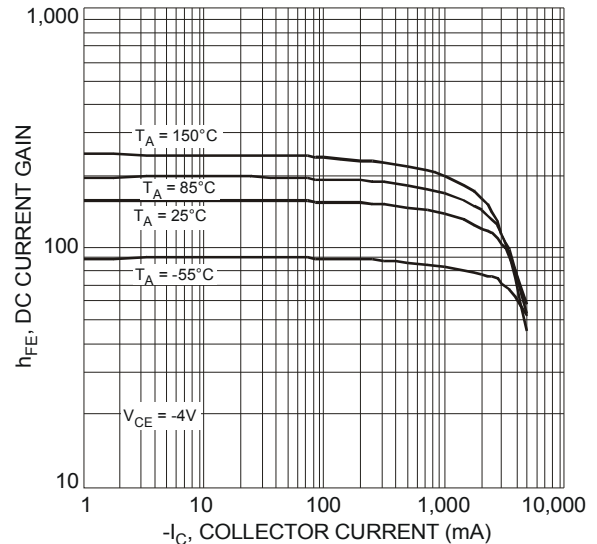


Fig. 4 Typical DC Current Gain vs. Collector Current

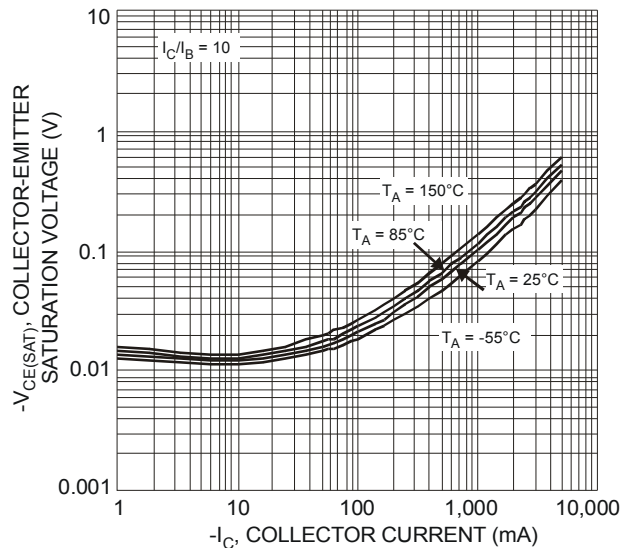


Fig. 5 Typical Collector-Emitter Saturation Voltage vs. Collector Current

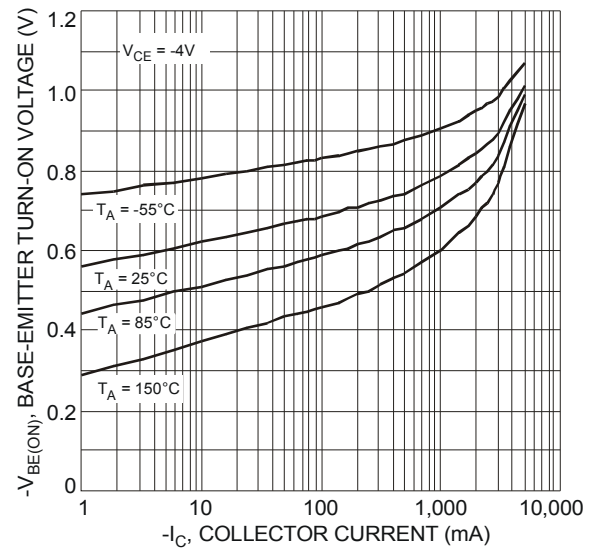
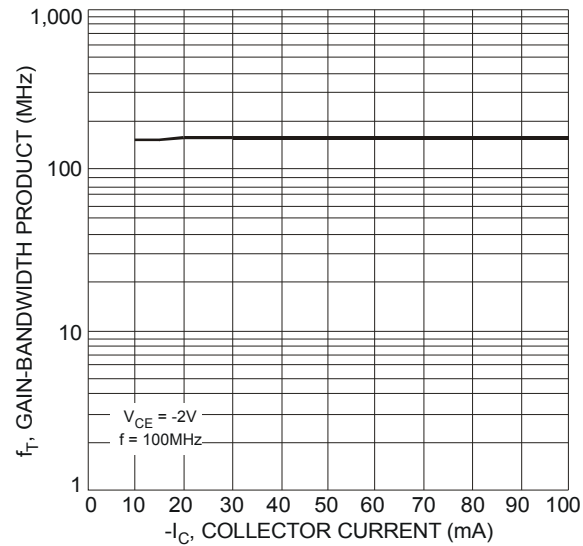
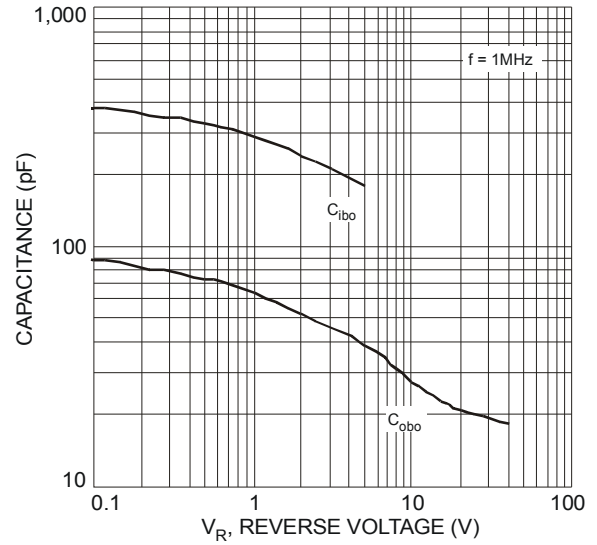
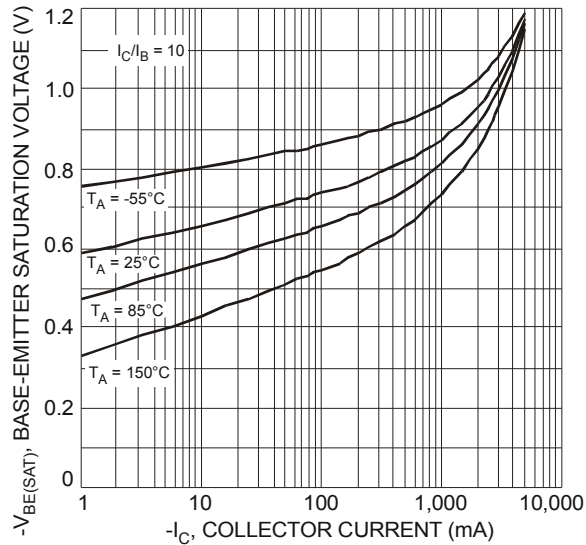
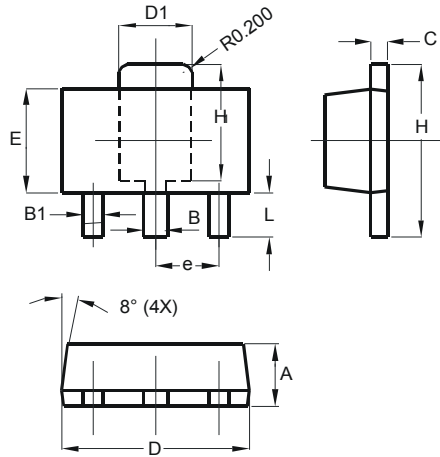


Fig. 6 Typical Base-Emitter Turn-On Voltage vs. Collector Current



Package Outline Dimensions

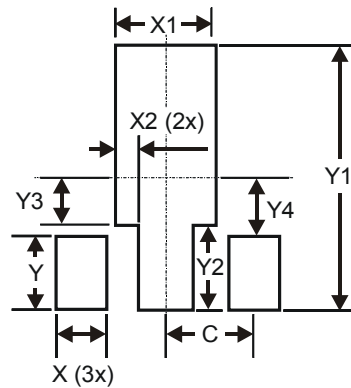
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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

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