

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-60	V
Collector-Emitter Voltage	V _{CEO}	-60	V
Emitter-Base Voltage	V _{EBO}	-5	V
Collector Current	I _C	-600	mA
Peak Collector Current	I _{CM}	-800	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	0.75	W
		1.2	
Thermal Resistance, Junction to Ambient Air	R _{θJA}	166	°C/W
		104	
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	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
5. For a device mounted with the exposed collector pad on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 6. Same as note 5, except the device is mounted with the exposed collector pad on 25mm x 25mm 1oz copper.
 7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV _{CBO}	-60	-120	—	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV _{CEO}	-60	-80	—	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-5	-8.8	—	V	I _E = -100μA
Collector Cut-off Current	I _{CBO}	—	-1	-50	nA	V _{CB} = -50V
		—	—	-50	μA	V _{CB} = -50V, T _A = +100°C
Collector Cutoff Current	I _{CEX}	—	—	-50	nA	V _{CE} = -30V, V _{EB(OFF)} = -0.5V
Emitter Cut-off Current	I _{EBO}	—	—	-50	nA	V _{EB} = -5V
ON CHARACTERISTICS (Note 8)						
Static Forward Current Transfer Ratio	h _{FE}	75	208	—	—	I _C = -100μA, V _{CE} = -10V
		100	207	—	—	I _C = -1mA, V _{CE} = -10V
		100	202	—	—	I _C = -10mA, V _{CE} = -10V
		100	169	300	—	I _C = -150mA, V _{CE} = -10V
		50	103	—	—	I _C = -500mA, V _{CE} = -10V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	—	-130	-400	mV	I _C = -150mA, I _B = -15mA
		—	-0.4	-1.6	V	I _C = -500mA, I _B = -50mA
Base-Emitter Saturation Voltage	V _{BE(SAT))}	—	-0.86	-1.3	V	I _C = -150mA, I _B = -15mA
		—	-1	-2.6	V	I _C = -500mA, I _B = -50mA
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C _{obo}	—	—	8	pF	V _{CB} = -10V, I _E = 0, f = 1MHz
Input Capacitance	C _{ibo}	—	—	30	pF	V _{EB} = -2V, f = 1MHz, I _C = 0
Current Gain-Bandwidth Product	f _T	200	—	—	MHz	V _{CE} = -20V, I _C = -50mA, f = 100MHz
SWITCHING CHARACTERISTICS						
Turn-On Time	t _{ON}	—	—	45	ns	V _{CC} = -30V, I _C = -150mA, I _{B1} = -15mA
Delay Time	t _D	—	—	10	ns	
Rise Time	t _R	—	—	40	ns	
Turn-Off Time	t _{OFF}	—	—	100	ns	V _{CC} = -6V, I _C = -150mA, I _{B1} = I _{B2} = -15mA
Storage Time	t _S	—	—	80	ns	
Fall Time	t _F	—	—	30	ns	

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

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

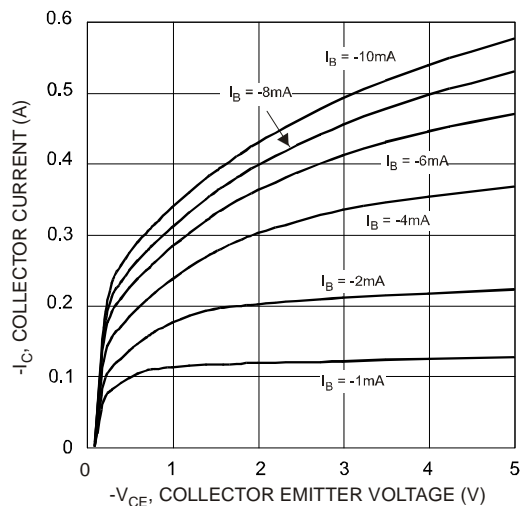


Fig. 1 Typical Collector Current as a Function of Collector Emitter Voltage

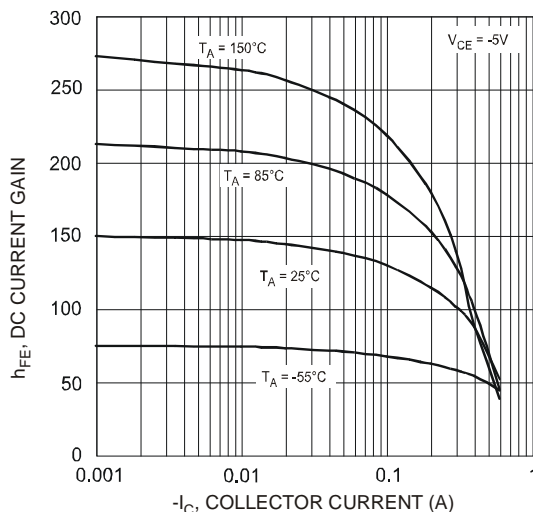


Fig. 2 Typical DC Current Gain vs. Collector Current

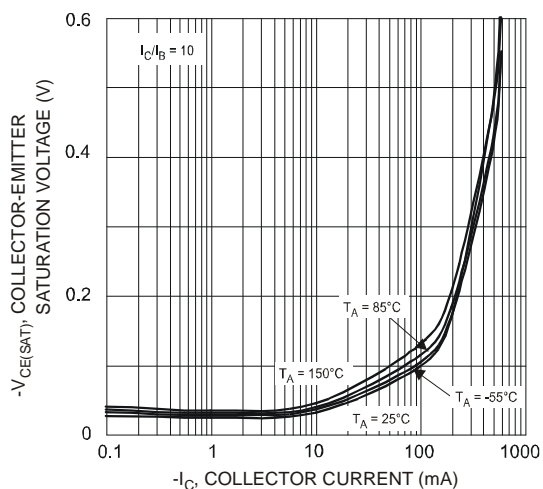


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

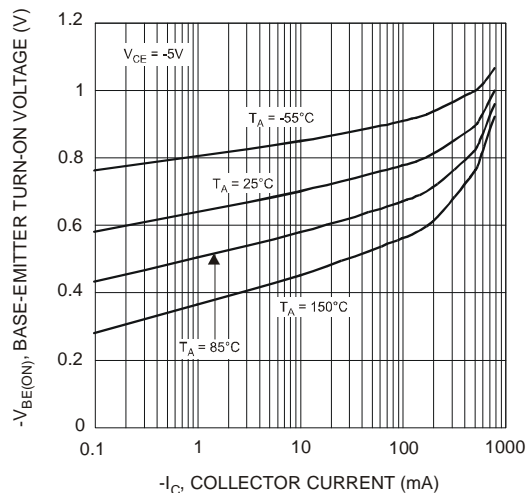


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

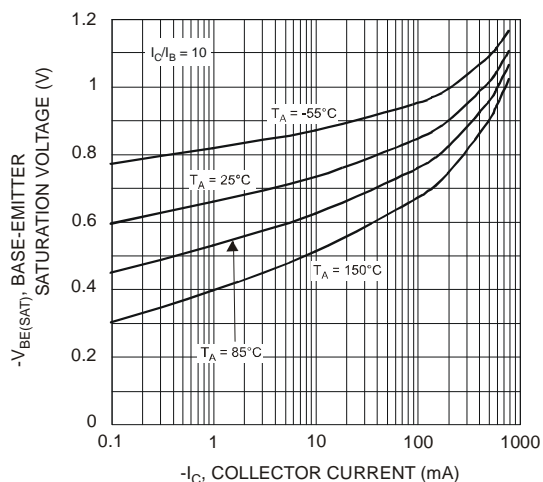


Fig. 5 Typical Base-Emitter Saturation Voltage vs. Collector Current

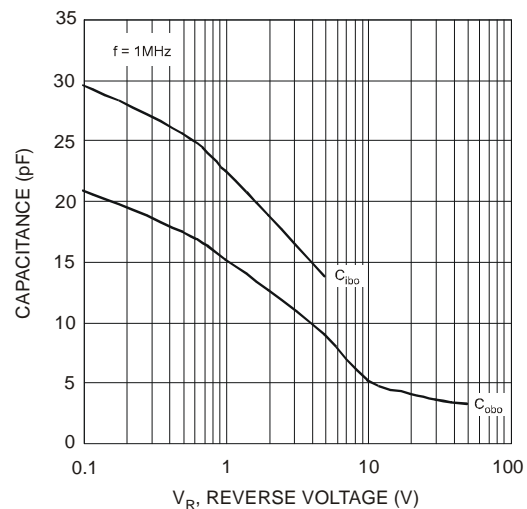
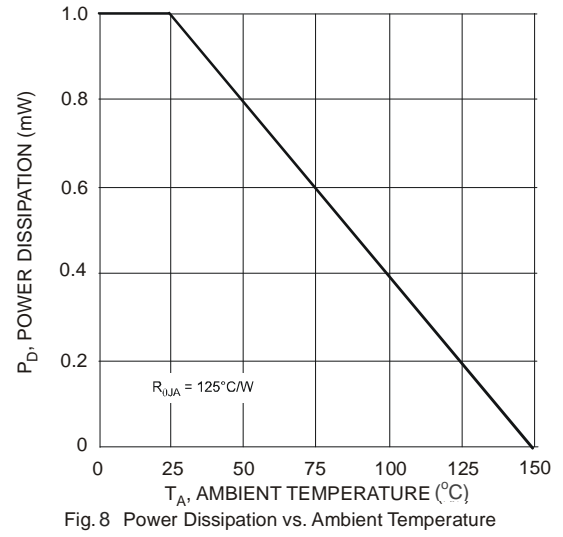
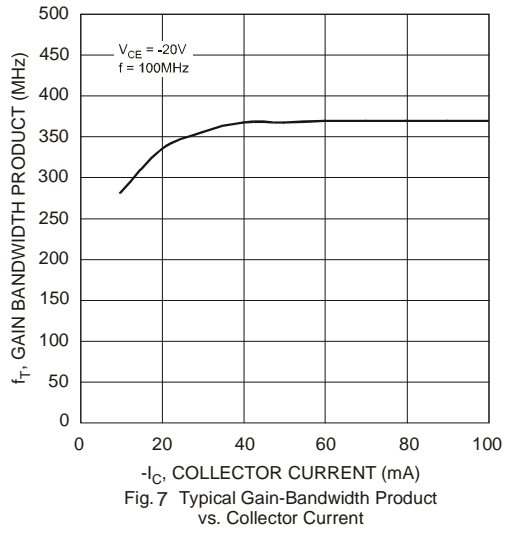
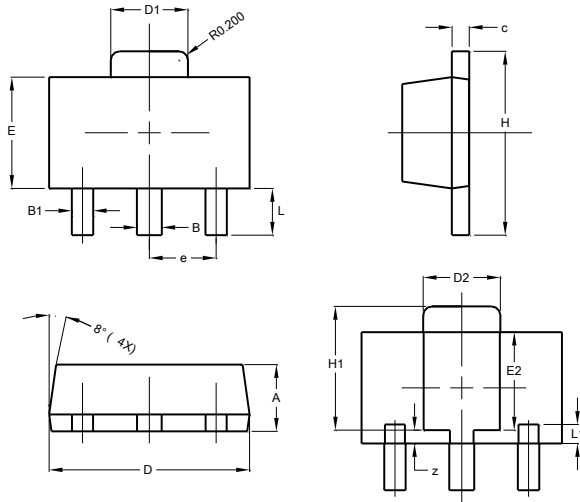


Fig. 6 Typical Capacitance Characteristics



Package Outline Dimensions

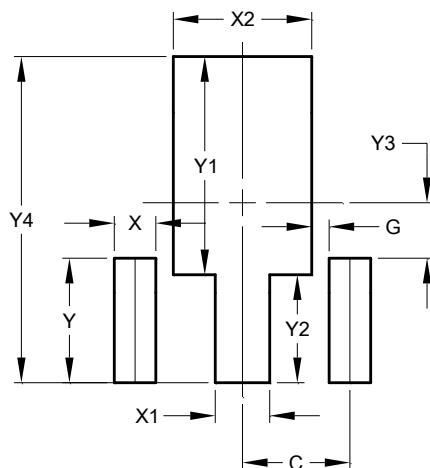
Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.



SOT89			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30
All Dimensions in mm			

Suggested Pad Layout

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



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530

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