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

Characteristic	Symbol	MMBTA05	MMBTA06	Unit
Collector-Base Voltage	V_{CBO}	60	80	V
Collector-Emitter Voltage	V_{CEO}	60	80	V
Emitter-Base Voltage	V_{EBO}	4.0		V
Collector Current	I_C	500		mA
Peak Collector Current	I_{CM}	1		A

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

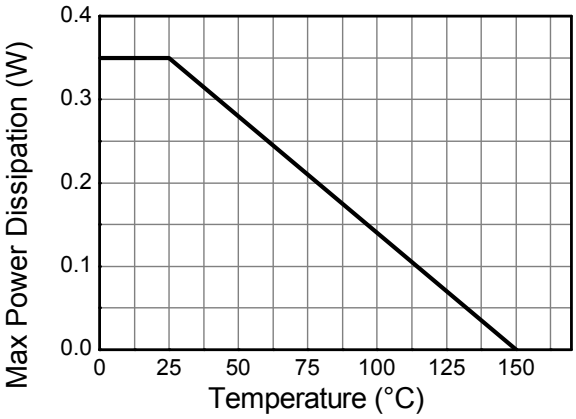
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 6)	P_D	310	mW
	(Note 7)		350	
Thermal Resistance, Junction to Ambient	(Note 6)	$R_{\theta JA}$	403	°C/W
	(Note 7)		357	
Thermal Resistance, Junction to Leads	(Note 8)	$R_{\theta JL}$	350	°C/W
Operating and Storage Temperature Range		T_J,T_{STG}	-55 to +150	°C

ESD Ratings (Note 9)

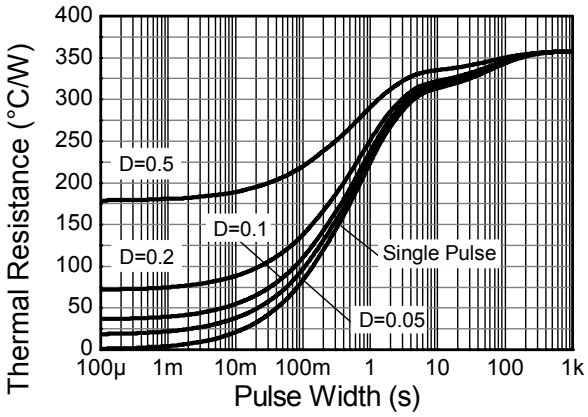
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
6. For a device mounted on minimum recommended pad layout 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
7. Same as note (6), except the device is mounted on 15 mm x 15mm 1oz copper.
8. Thermal resistance from junction to solder-point (at the end of the leads).
9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

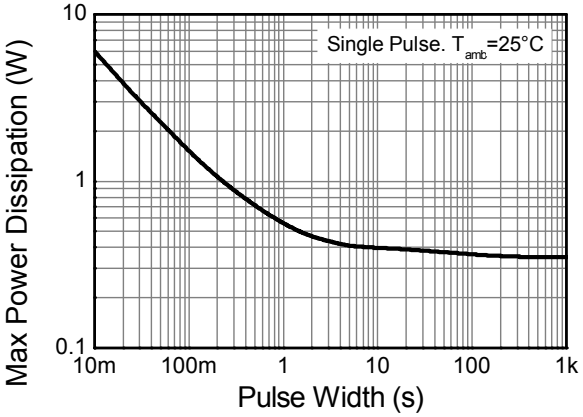
Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

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

Characteristic		Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	MMBTA05 MMBTA06	BV_{CBO}	60 80	—	V	I_C = 100μA, I_E = 0
Collector-Emitter Breakdown Voltage (Note 10)	MMBTA05 MMBTA06	BV_{CEO}	60 80	—	V	I_C = 10.0mA, I_B = 0
Emitter-Base Breakdown Voltage		BV_{EBO}	4.0	—	V	I_E = 100 μA, I_C = 0
Collector Cutoff Current	MMBTA05 MMBTA06	I_{CBO}	—	100	nA	V_{CB} = 60V, I_E = 0 V_{CB} = 80V, I_E = 0
Collector Cutoff Current	MMBTA05 MMBTA06	I_{CES}	—	100	nA	V_{CE} = 60V, I_{BO} = 0V V_{CE} = 80V, I_{BO} = 0V
ON CHARACTERISTICS (Note 10)						
DC Current Gain		h_{FE}	100	—	—	I_C = 10mA, V_{CE} = 1.0V I_C = 100mA, V_{CE} = 1.0V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	—	0.25	V	I_C = 100mA, I_B = 10mA
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	—	1.2	V	I_C = 100mA, V_{CE} = 1.0V
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product		f_T	100	—	MHz	V_{CE} = 2.0V, I_C = 10mA, f = 100MHz

Note: 10. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

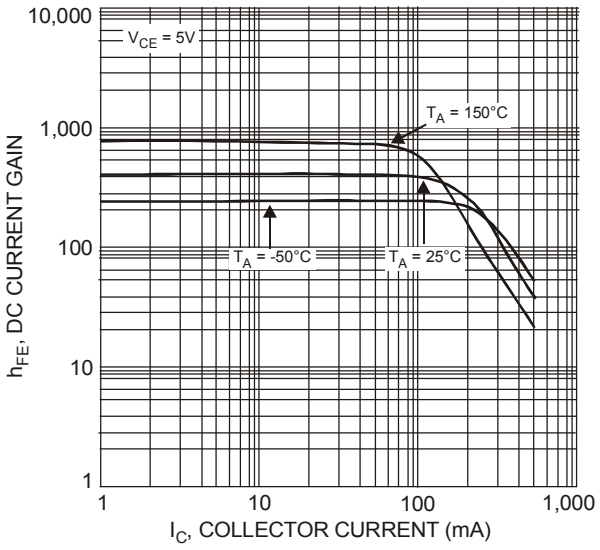


Figure 1 Typical DC Current Gain vs. Collector Current

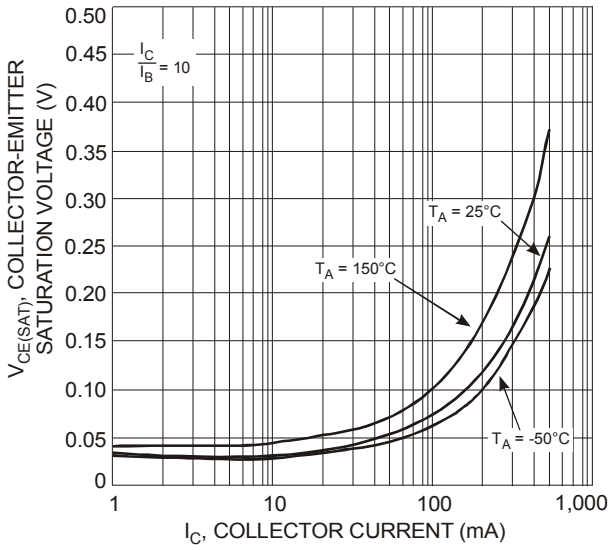


Figure 2 Collector-Emitter Saturation Voltage vs. Collector Current

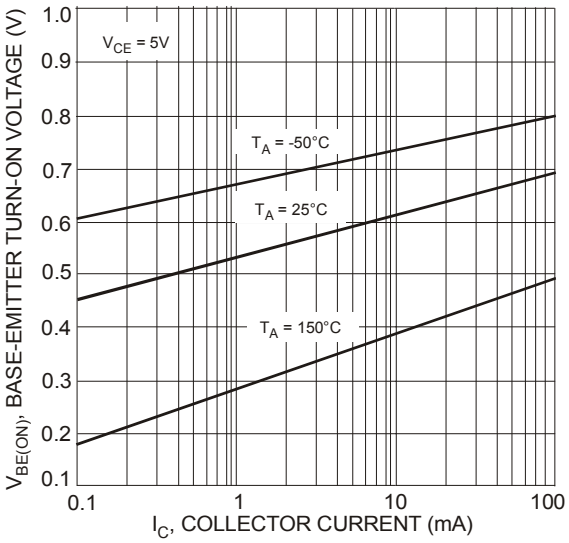


Figure 3 Typical Base-Emitter Turn-On Voltage vs. Collector Current

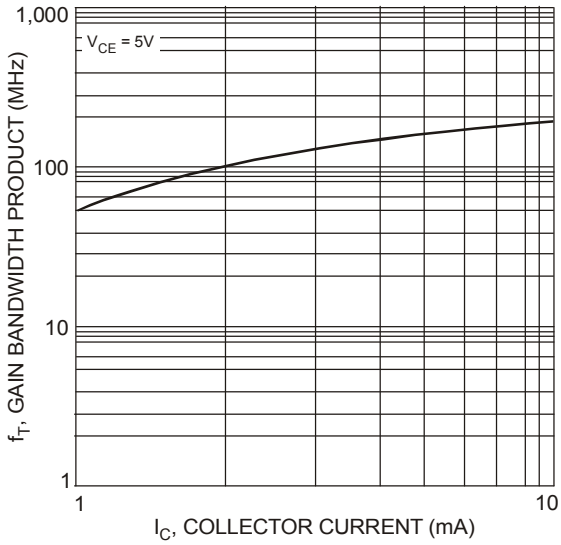


Figure 4 Typical Gain Bandwidth Product vs. Collector Current

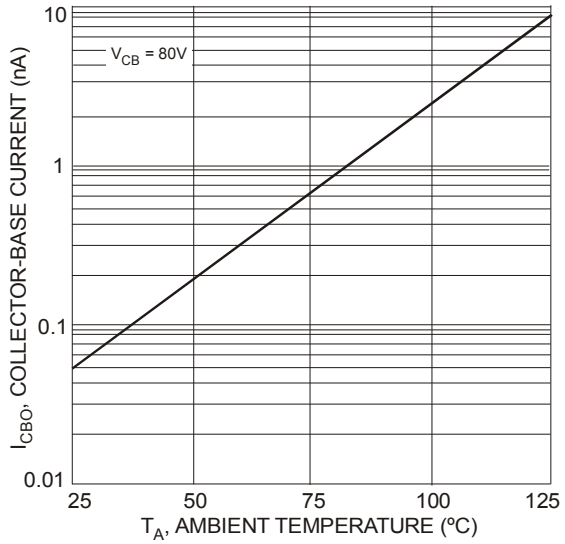


Figure 5 Typical Collector-Cutoff Current vs. Ambient Temperature

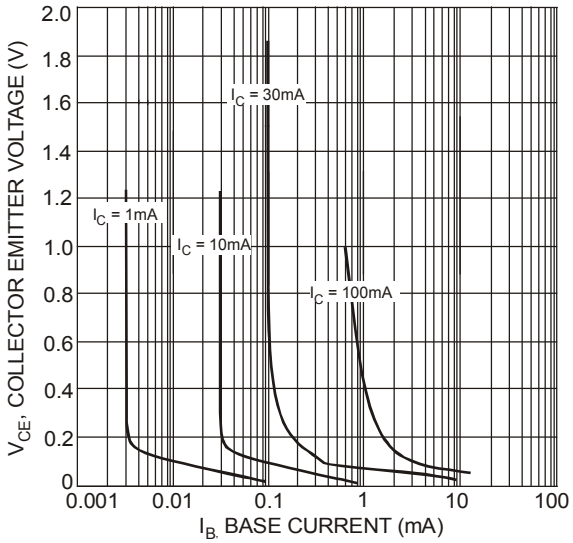
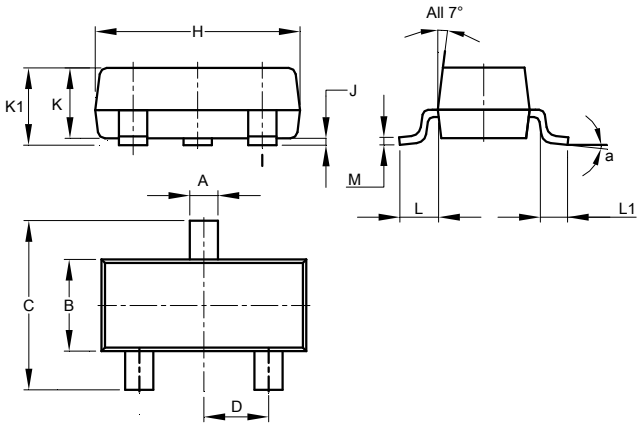


Figure 6 Typical Collector Saturation Region

Package Outline Dimensions

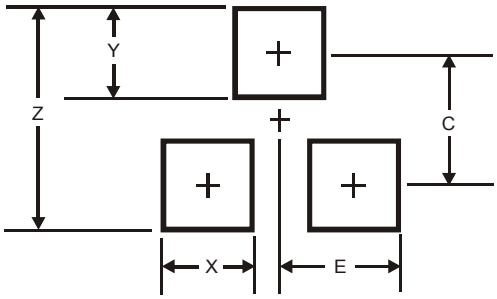
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		
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)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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