

## Absolute Maximum Rating (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-50	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-45	V
Emitter-Base Voltage	V <sub>EBO</sub>	-6.0	V
Collector Current - Continuous (Note 5)	I <sub>C</sub>	-100	mA

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	417	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

## ESD Rating (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	200	V	B

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

# Thermal Characteristics and Derating Information

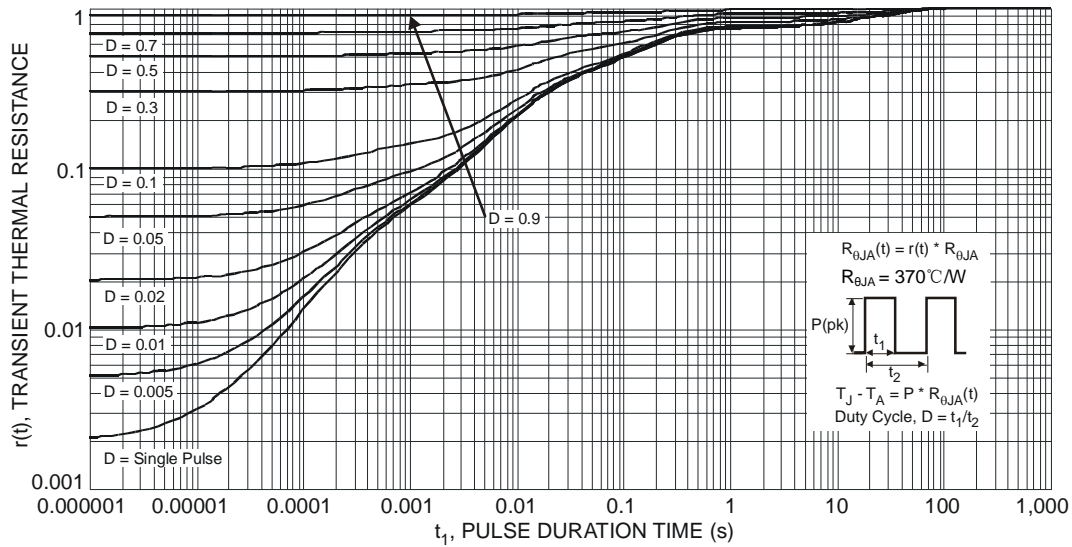


Fig. 1 Transient Thermal Response

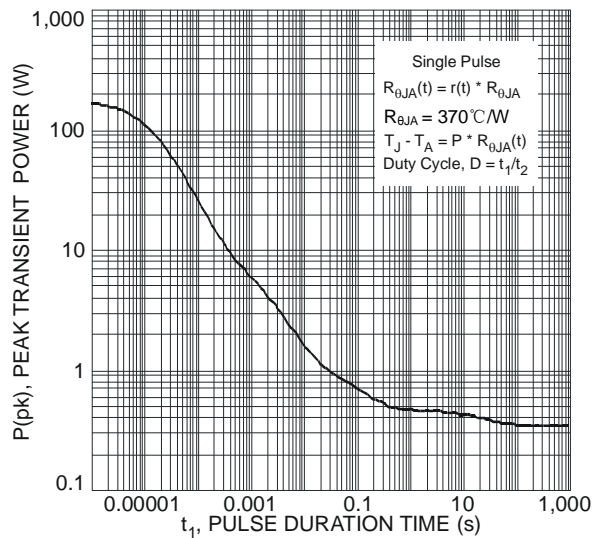


Fig. 2 Single Pulse Maximum Power Dissipation

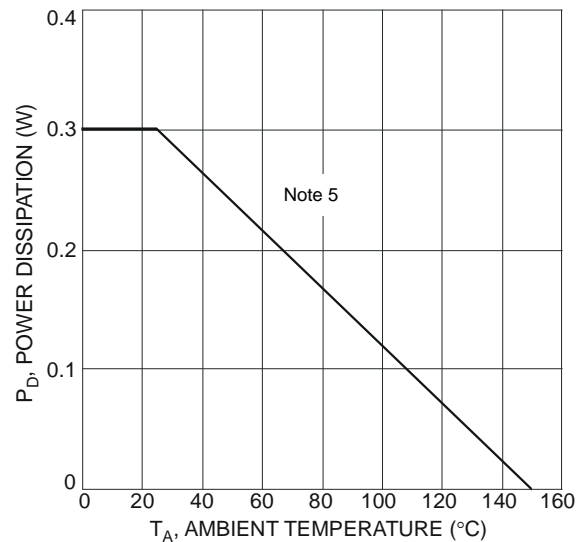


Fig. 3 Power Dissipation vs. Ambient Temperature

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

Characteristic (Note 7)	Symbol	Min	Typical	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-50	-100	-	V	$I_C = -10\mu\text{A}$ , $I_B = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	-50	-90	-	V	$I_C = -10\mu\text{A}$ , $I_B = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-45	-65	-	V	$I_C = -1\text{mA}$ , $I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	-8.5	-	V	$I_E = -1\mu\text{A}$ , $I_C = 0$
Collector Cut-Off Current	$I_{CBO}$	-	-	-15	nA	$V_{CB} = -30\text{V}$
DC Current Gain	$h_{FE}$	-	340 330	-	-	$I_C = -10\mu\text{A}$ , $V_{CE} = -5\text{V}$ $I_C = -2.0\text{mA}$ , $V_{CE} = -5\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	-	-70 -300	-175 -500	mV	$I_C = -10\text{mA}$ , $I_B = -0.5\text{mA}$ $I_C = -100\text{mA}$ , $I_B = -5.0\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	-	-760 -885	-1000 -1100	mV	$I_C = -10\text{mA}$ , $I_B = -0.5\text{mA}$ $I_C = -100\text{mA}$ , $I_B = -5.0\text{mA}$
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	-600	-670 -715	-780 -850	mV	$I_C = -2.0\text{mA}$ , $V_{CE} = -5\text{V}$ $I_C = -10\text{mA}$ , $V_{CE} = -5\text{V}$
Current Gain-Bandwidth Product	$f_T$	100	340	-	MHz	$V_{CE} = -5\text{V}$ , $I_C = -10\text{mA}$ , $f = 100\text{MHz}$
Output Capacitance	$C_{obo}$	-	2.0	-	pF	$V_{CB} = -10\text{V}$ , $f = 1.0\text{MHz}$

Note: 7. Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

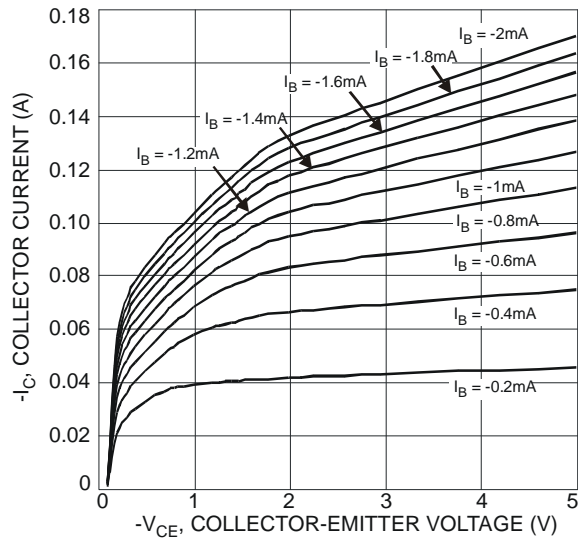


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

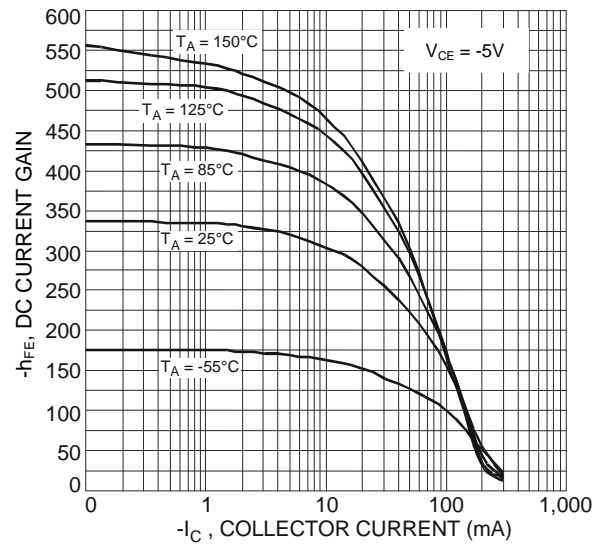


Fig. 5 Typical DC Current Gain vs. Collector Current

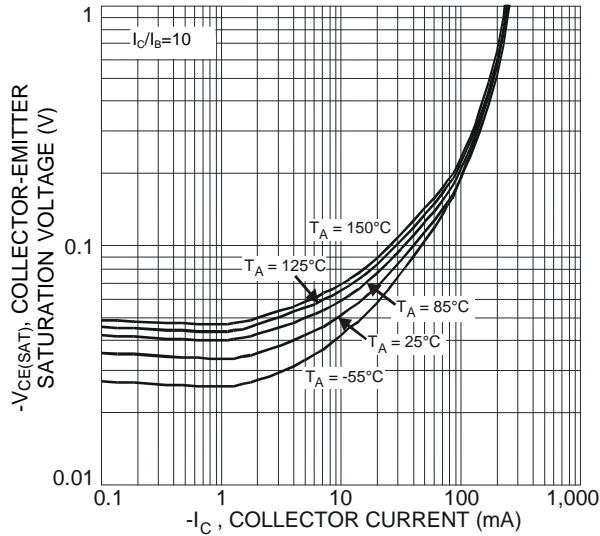


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

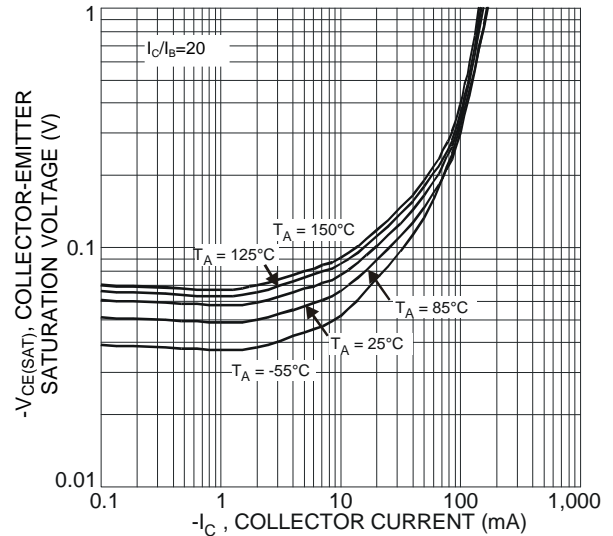


Fig. 7 Typical Collector-Emitter Saturation Voltage vs. Collector Current

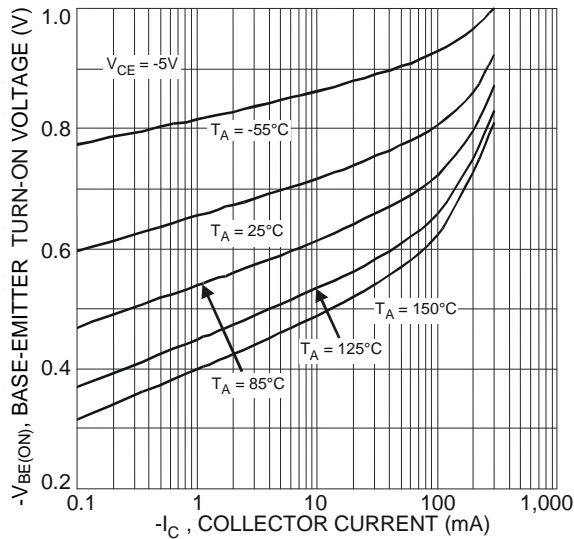


Fig. 8 Typical Base-Emitter Turn-On Voltage vs. Collector Current

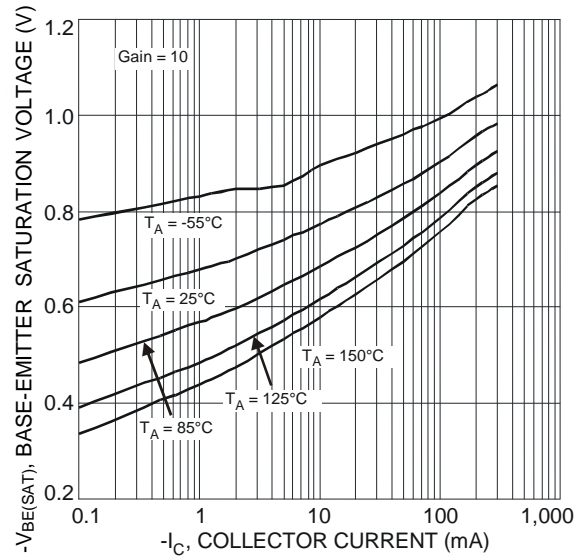
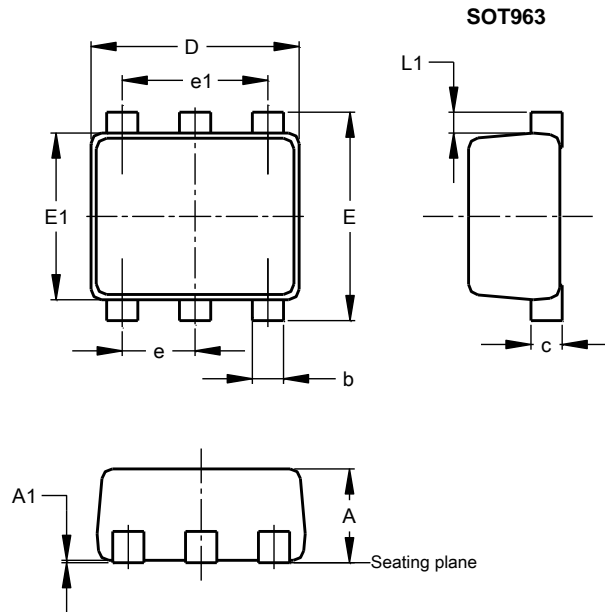


Fig. 9 Typical Base-Emitter Saturation Voltage vs. Collector Current

## Package Outline Dimensions

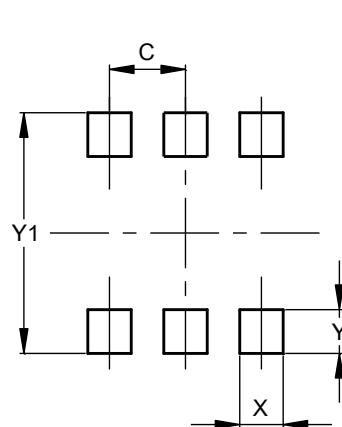
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



SOT963			
Dim	Min	Max	Typ
A	0.40	0.50	0.45
A1	0.00	0.05	--
b	0.10	0.20	0.15
c	0.120	0.180	0.150
D	0.95	1.05	1.00
E	0.95	1.05	1.00
E1	0.75	0.85	0.80
e	--	--	0.35
e1	--	--	0.70
L1	0.05	0.15	0.10
All Dimensions in mm			

## Suggested Pad Layout

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



Dimensions	Value (in mm)
C	0.350
X	0.200
Y	0.200
Y1	1.100

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