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45V DUAL PNP SMALL SIGNAL TRANSISTOR IN SOT-963

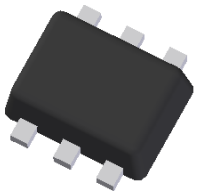
Features

- Epitaxial Planar Die Construction
- Ideally Suited for Automated Assembly Processes
- Complementary NPN Type Available (DST847BDJ)
- Ultra Small Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

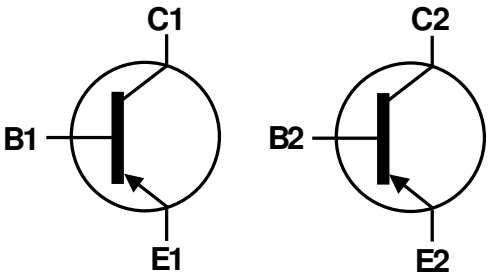
Mechanical Data

- Case: SOT-963
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads; Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.0027 grams (Approximate)

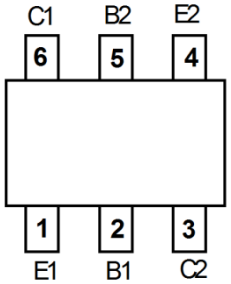
SOT-963



Top View



Device Symbol



Top View
Pin-Out

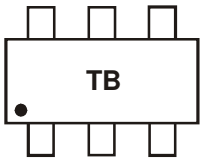
Ordering Information

Device	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DST857BDJ-7	Standard	TB	7	8	10,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen and Antimony free, "Green" and Lead-Free.
3. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SOT-963



TB = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-45	V
Emitter-Base Voltage	V_{EBO}	-5.0	V
Collector Current - Continuous (Note 5)	I_C	-100	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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

ESD rating

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

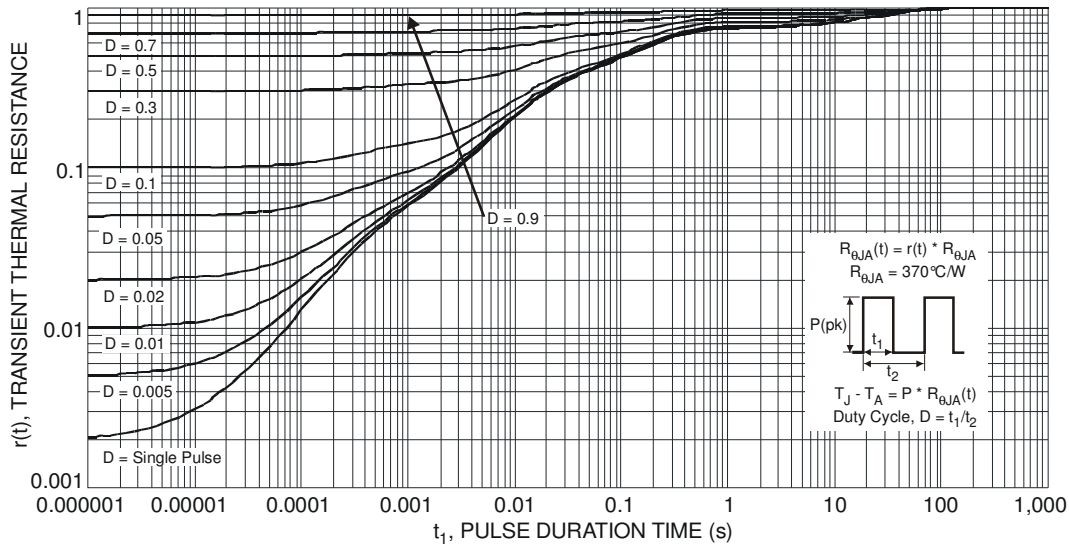


Fig. 1 Transient Thermal Response

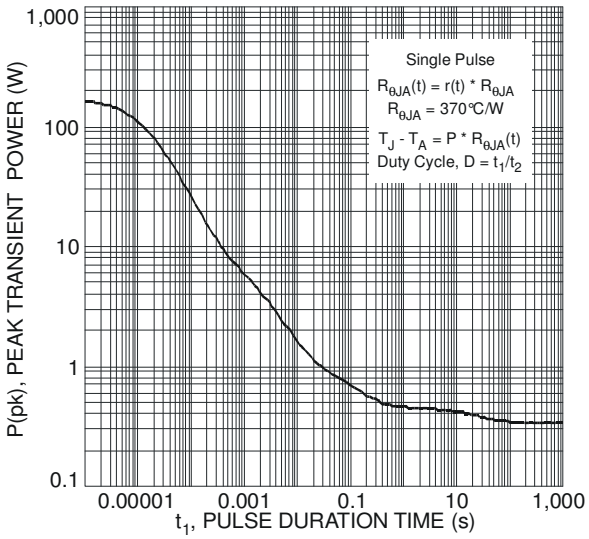


Fig. 2 Single Pulse Maximum Power Dissipation

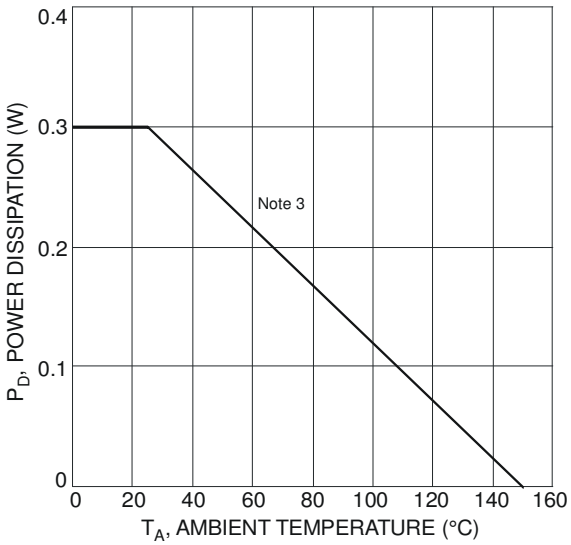


Fig. 3 Power Dissipation vs. Ambient Temperature

Typical Electrical Characteristics (@T_A = +25°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 = -10µA, I_B = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	-50	-90	-	V	I_C = -10µA, I_B = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-45	-65	-	V	I_C = -1mA, I_B = 0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	-8.5	-	V	I_E = -1µA, I_C = 0
Collector Cut-Off Current	I_{CBO}	-	-	-15	nA	V_{CB} = -30V
DC Current Gain	h_{FE}	- 200	340 330	- 470	-	I_C = -10µA, V_{CE} = -5V I_C = -2.0mA, V_{CE} = -5V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	- -	-70 -300	-175 -500	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	- -	-760 -885	-1,000 -1,100	mV	I_C = -10mA, I_B = -0.5mA I_C = -100mA, I_B = -5.0mA
Base-Emitter Voltage	$V_{BE(on)}$	-600	-670 -715	-780 -850	mV	I_C = -2.0mA, V_{CE} = -5V I_C = -10mA, V_{CE} = -5V
Current Gain-Bandwidth Product	f_T	100	340	-	MHz	V_{CE} = -5V, I_C = -10mA, f = 100MHz
Output Capacitance	C_{obo}	-	2.0	-	pF	V_{CB} = -10V, f = 1.0MHz

Note: 7. Measured under pulsed conditions. Pulse width ≤ 300 µs. Duty cycle ≤ 2%.

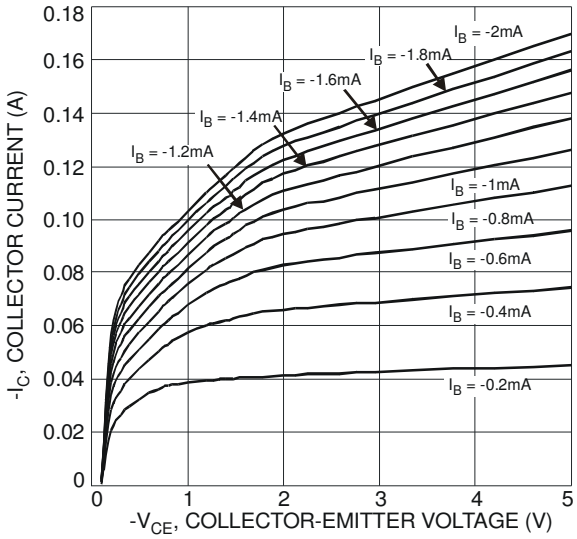


Fig. 4 Typical Collector Current vs. Collector-Emitter Voltage

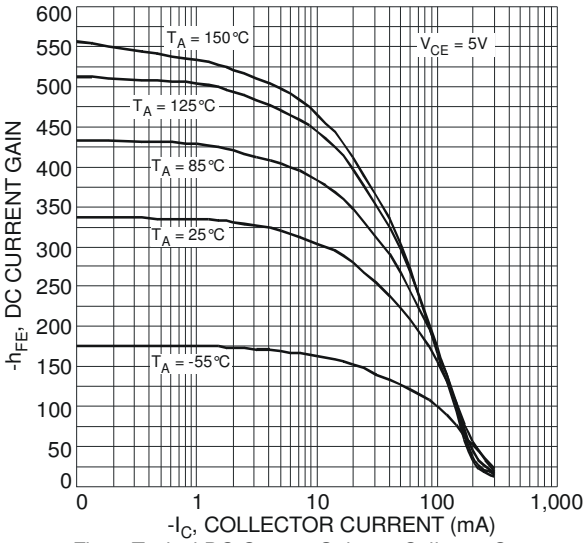


Fig. 5 Typical DC Current Gain vs. Collector Current

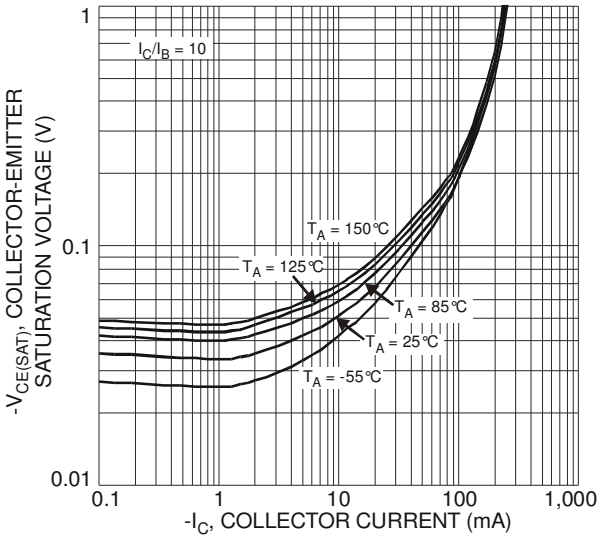


Fig. 6 Typical Collector-Emitter Saturation Voltage vs. Collector Current

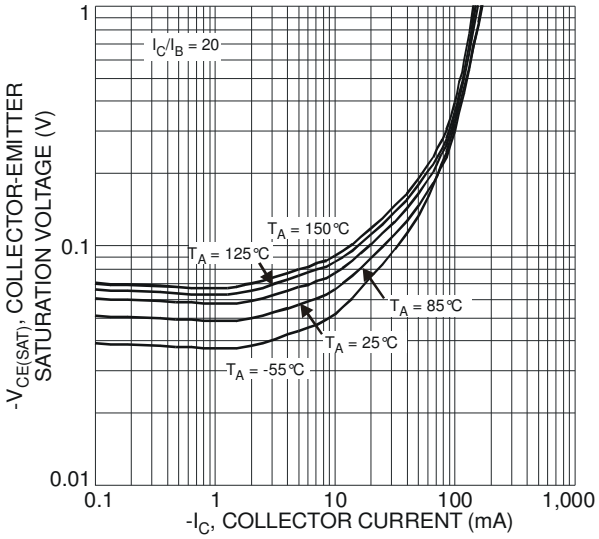


Fig. 7 Typical Collector-Emitter Saturation Voltage vs. Collector Current

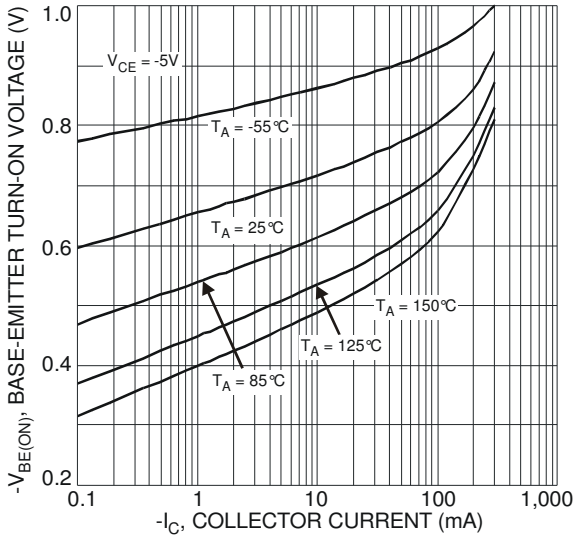


Fig. 8 Typical Base-Emitter Turn-On Voltage vs. Collector Current

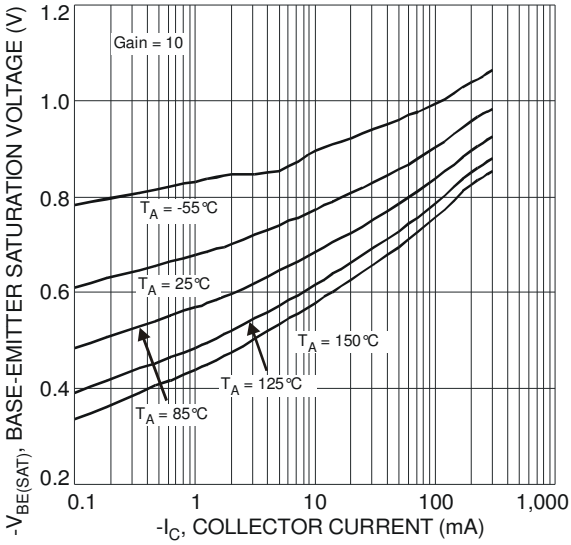
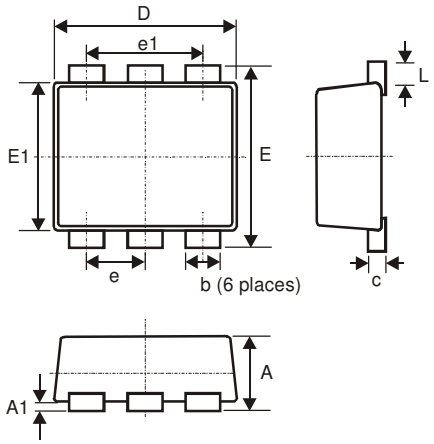


Fig. 9 Typical Base-Emitter Saturation Voltage vs. Collector Current

Package Outline Dimensions

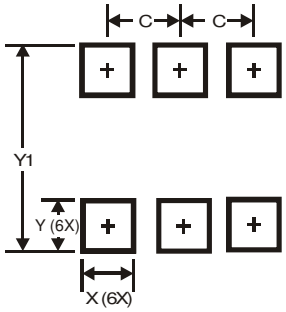
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



SOT-963			
Dim	**Min**	**Max**	**Typ**
A	0.40	0.50	0.45
A1	0	0.05	-
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
L	0.05	0.15	0.10
b	0.10	0.20	0.15
e	0.35 Typ		
e1	0.70 Typ		
All Dimensions in mm			

Suggest Pad Layout

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



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

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