优尚

YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

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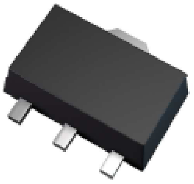
Features

- BV_{CEO} > -32V
- I_C = -1A High Continuous Collector Current
- Complementary NPN Type: 2DD1664
- Ideally Suited for Automated Assembly Processes
- Ideal for Medium Power Switching or Amplification Applications

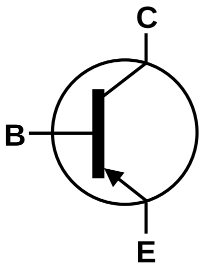
Mechanical Data

- Case: SOT89
- Case Material: Molded Plastic. “Green” Molding Compound. UL Flammability 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: 0.055 grams (Approximate)

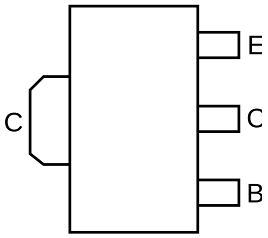
SOT89



Top View



Device Symbol



Pin Out
Top View

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-32	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-1	A
Peak Pulse Current	I_{CM}	-2	A

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

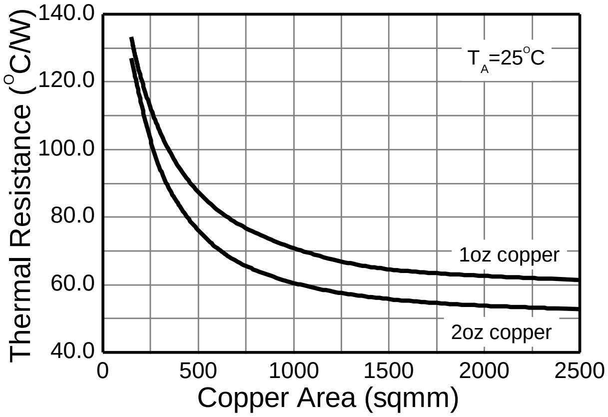
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	1	W
	(Note 6)		1.5	
	(Note 7)		2	
Thermal Resistance, Junction to Ambient Air	(Note 5)	$R_{\theta JA}$	125	°C/W
	(Note 6)		83	
	(Note 7)		60	
Thermal Resistance, Junction to Case	(Note 5)	$R_{\theta JC}$	18	°C/W
Thermal Resistance, Junction to Lead	(Note 8)	$R_{\theta JL}$	22	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

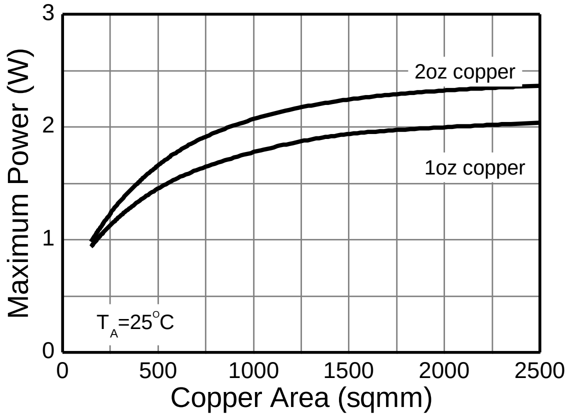
ESD Ratings (Note 9)

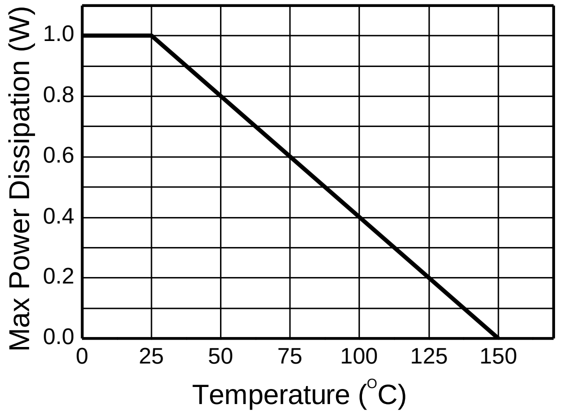
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes:
5. For a device mounted with the exposed collector pad on 15mm x 15mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Same as note (5), except the device is mounted on 25mm x 25mm 1oz copper.
7. Same as note (5), except the device is mounted on 50mm x 50mm 1oz copper.
8. Thermal resistance from junction to solder-point (on the exposed collector pad).
9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

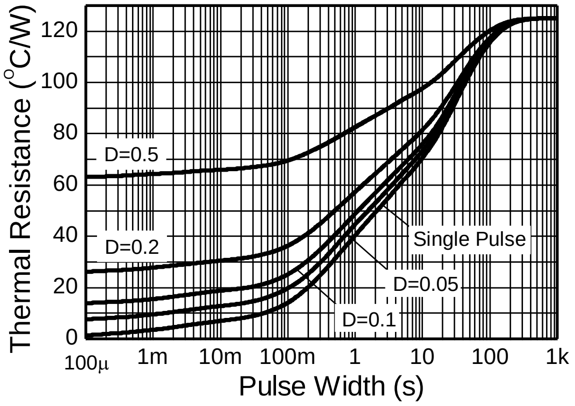
Thermal Characteristics and Derating Information



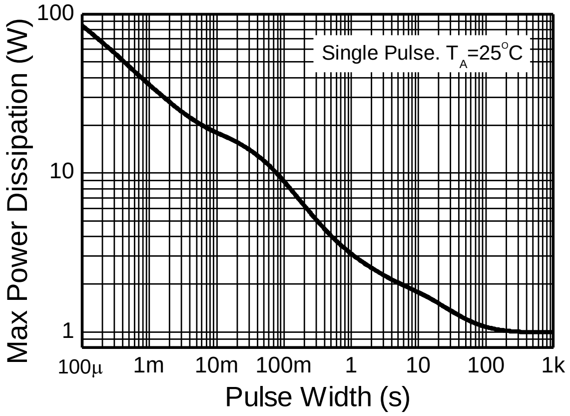




Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

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

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	-40	—	—	V	$I_C = -50\mu A$
Collector-Emitter Breakdown Voltage (Note 10)		BV_{CEO}	-32	—	—	V	$I_C = -1mA$
Emitter-Base Breakdown Voltage		BV_{EBO}	-5	—	—	V	$I_E = -50\mu A$
Collector Cut-Off Current		I_{CBO}	—	—	-0.5	µA	$V_{CB} = -20V$
Emitter Cut-Off Current		I_{EBO}	—	—	-0.5	µA	$V_{EB} = -4V$
Static Forward Current Transfer Ratio (Note 10)	NK-2DB1132P	h_{FE}	82	—	180	—	$I_C = -100mA$, $V_{CE} = -3V$
	NK-2DB1132Q		120		270		
	NK-2DB1132R		180		390		
Collector-Emitter Saturation Voltage (Note 10)		$V_{CE(sat)}$	—	-125	-500	mV	$I_C = -500mA$, $I_B = -50mA$
Transition Frequency		f_T	—	190	—	MHz	$I_E = -50mA$, $V_{CE} = -5V$, f = 30MHz
Output Capacitance		C_{obo}	—	12	30	pF	$I_E = 0A$, $V_{CB} = -10V$, f = 1MHz

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

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

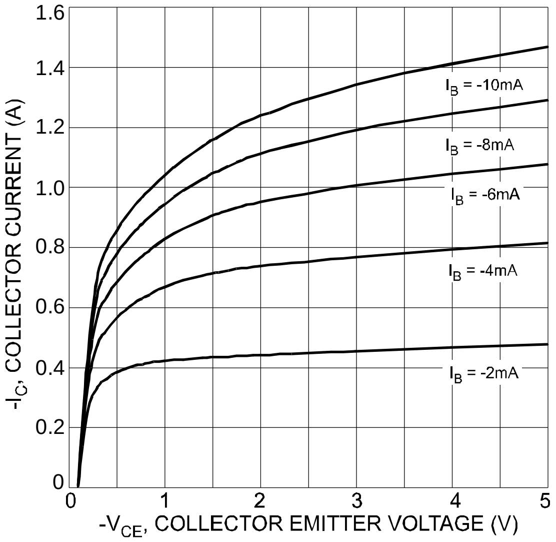


Fig. 1 Typical Collector Current vs. Collector-Emitter Voltage

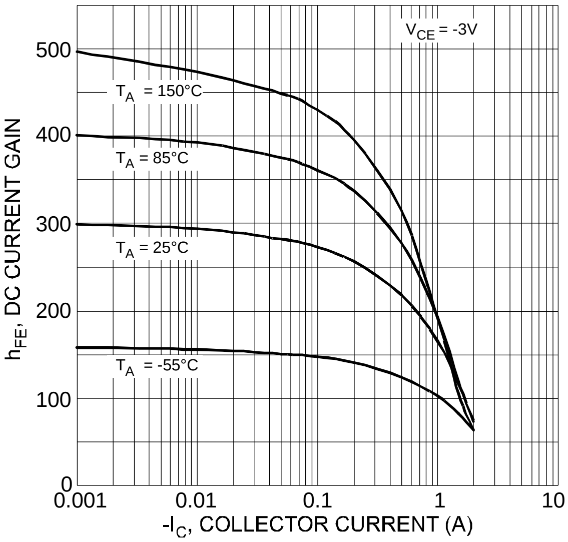


Fig. 2 Typical DC Current Gain vs. Collector Current (2DB1132R)

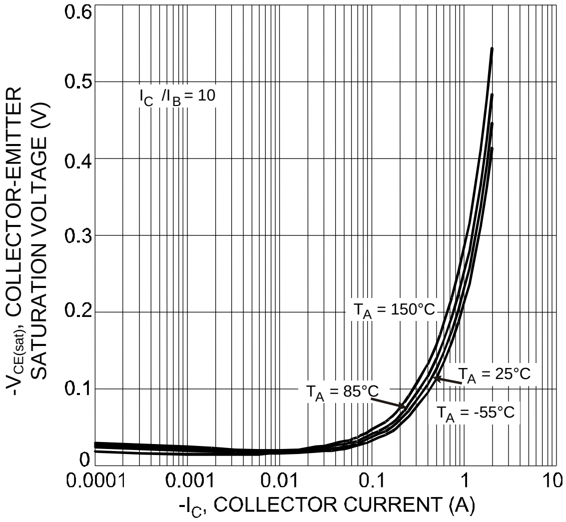


Fig. 3 Typical Collector-Emitter Saturation Voltage vs. Collector Current

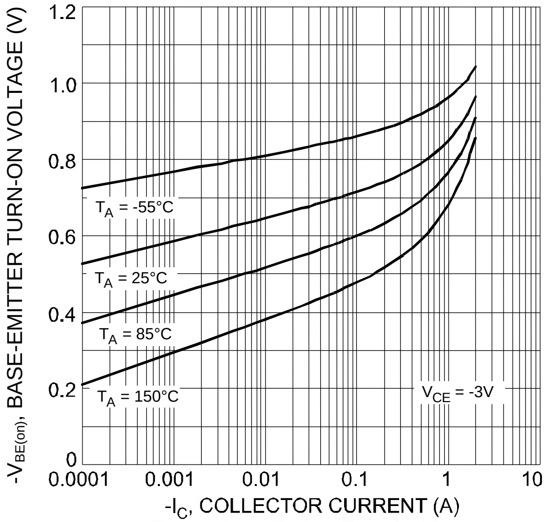


Fig. 4 Typical Base-Emitter Turn-On Voltage vs. Collector Current

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

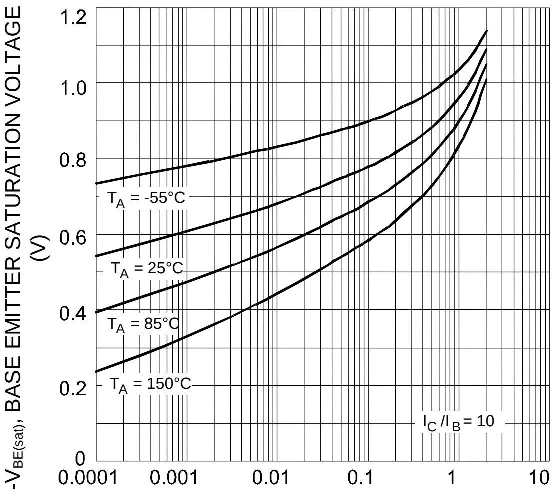


Fig. 5 Typical Base-Emitter Saturation Voltage vs. Collector Current

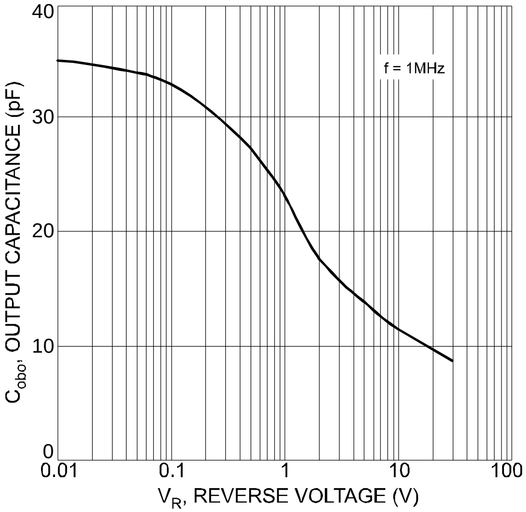


Fig. 6 Typical Output Capacitance Characteristics

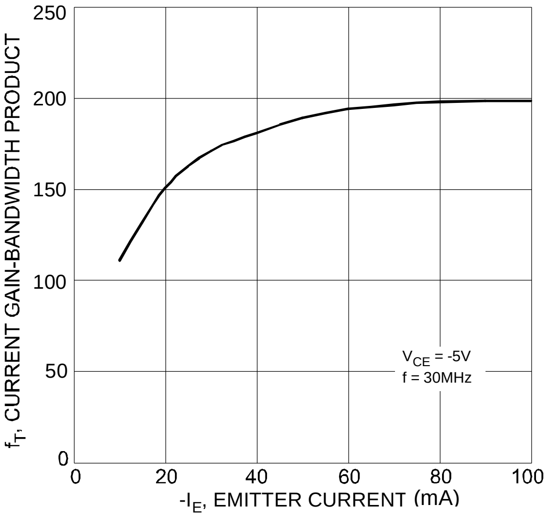
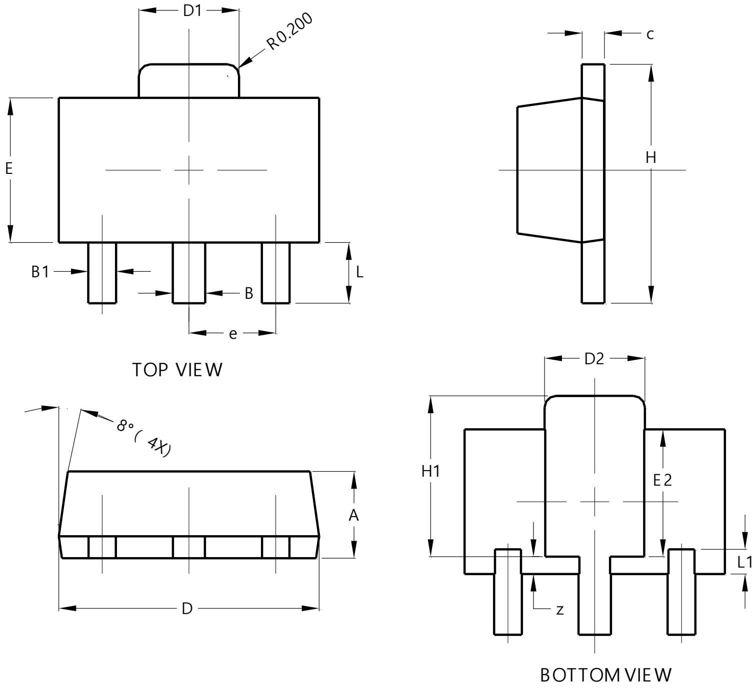


Fig. 7 Typical Gain-Bandwidth Product vs. Emitter Current

Package Outline Dimensions

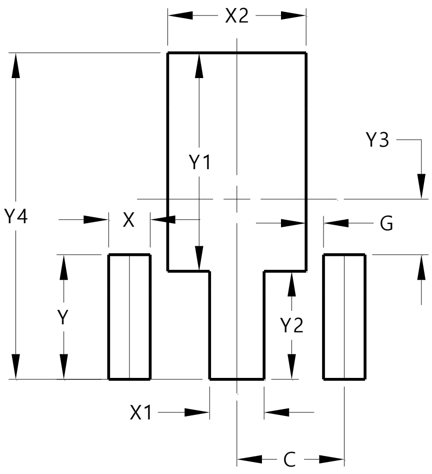
SOT89



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

SOT89



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