300V HIGH-VOLTAGE PNP TRANSISTOR IN SOT89

Features

- BV_{CEO} > -300V
- I_C = -500mA Continuous Current
- Complementary NPN Type Available (DXTA42)
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

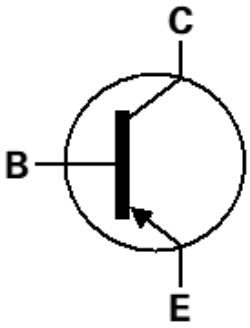
- Package: SOT89
- Package Material: Molded Plastic, "Green" Molding Compound UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe (Lead-Free Plating). Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.072 grams (Approximate)

Applications

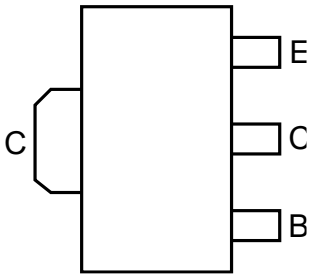
- Epitaxial planar die construction
- Medium power switching or amplification

SOT89

Top View



Device Symbol



Top View
Pinout

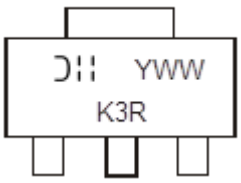
Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
DXTA92-13	SOT89	K3R	13	12	2500	Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

SOT89
(Top View)



= Manufacturer's Marking
K3R = Product Type Marking Code
YWW = Date Code Marking
Y or $\overline{Y}$= Last Digit of Year (ex: 6 = 2026)
WW = Week Code (01 to 52)

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-300	V
Collector-Emitter Voltage	V_{CEO}	-300	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-500	mA

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

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	1	W
	(Note 6)		1.6	
	(Note 7)		2.0	
Thermal Resistance, Junction to Ambient Air	(Note 5)	$R_{\theta JA}$	125	°C/W
	(Note 6)		78	
	(Note 7)		62.5	
Thermal Resistance, Junction to Lead	(Note 8)	$R_{\theta JL}$	5.7	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Notes:
5. For the device mounted on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in steady-state condition. The entire exposed collector pad is attached to the heatsink.
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).

Thermal Characteristics and Derating Information

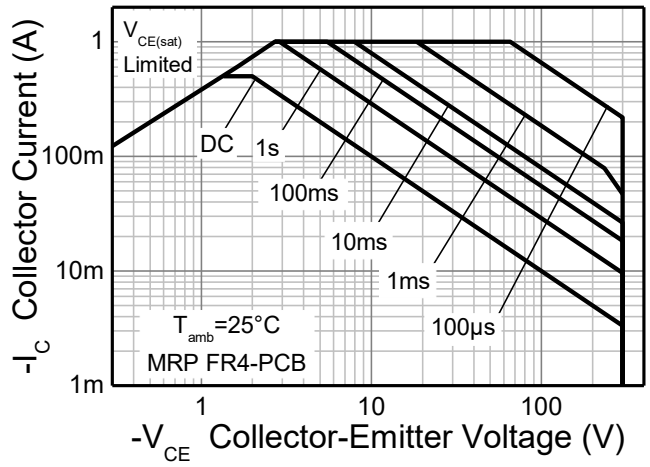


Figure 1. Safe Operating Area

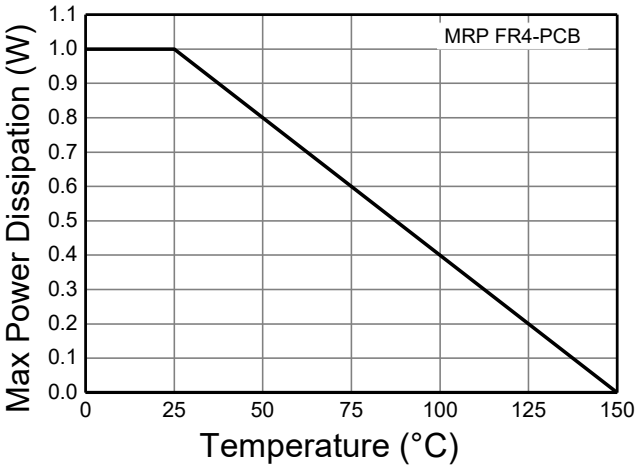


Figure 2. Derating Curve

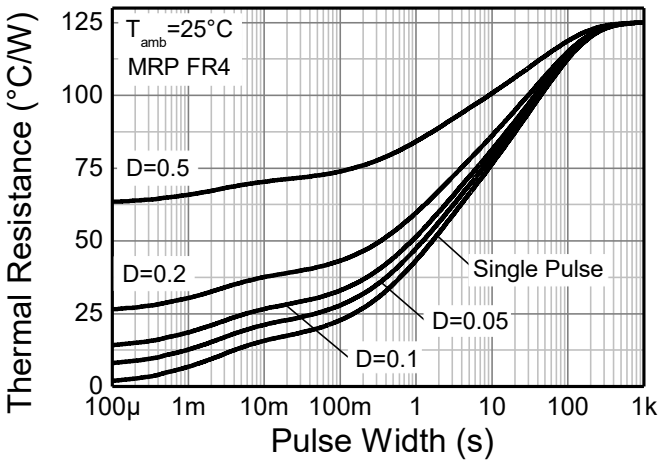


Figure 3. Transient Thermal Impedance

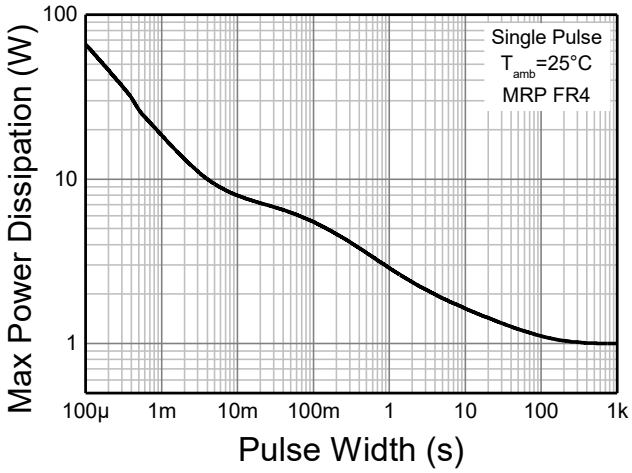


Figure 4. Pulse Power Dissipation

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)						
Collector-Base Cutoff Current	I_{CBO}	—	—	-250	nA	V_{CB} = -200V
Emitter-Base Cutoff Current	I_{EBO}	—	—	-100	nA	V_{EB} = -3V
Collector-Base Breakdown Voltage	BV_{CBO}	-300	—	—	V	I_C = -100µA
Collector-Emitter Breakdown Voltage	BV_{CEO}	-300	—	—	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = -100µA
ON CHARACTERISTICS (Note 9)						
DC Current Gain	h_{FE}	25	—	—	—	V_{CE} = -10V, I_C = -1mA
		40	—	—		V_{CE} = -10V, I_C = -10mA
		25	—	—		V_{CE} = -10V, I_C = -30mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	-0.5	V	I_C = -20mA, I_B = -2mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	-0.9	V	I_C = -20mA, I_B = -2mA
SMALL-SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	50	—	—	MHz	V_{CE} = -20V, I_C = -10mA, f = 100MHz
Output Capacitance	C_{obo}	—	—	6	pF	V_{CB} = -20V, f = 1MHz

Note: 9. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤ 2%.

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

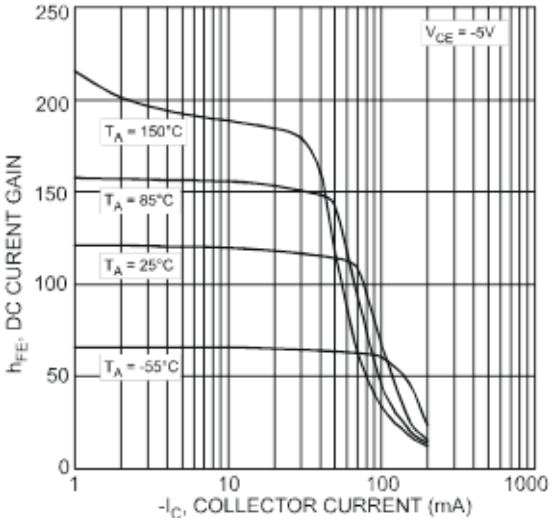


Figure 5. h_{FE} vs. I_C

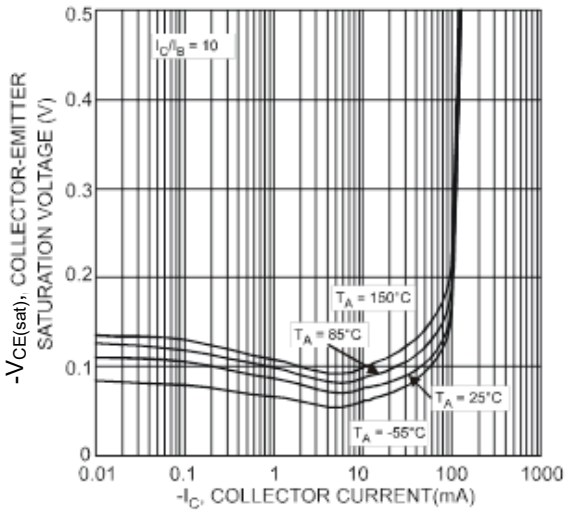


Figure 6. $V_{CE(sat)}$ vs. I_C

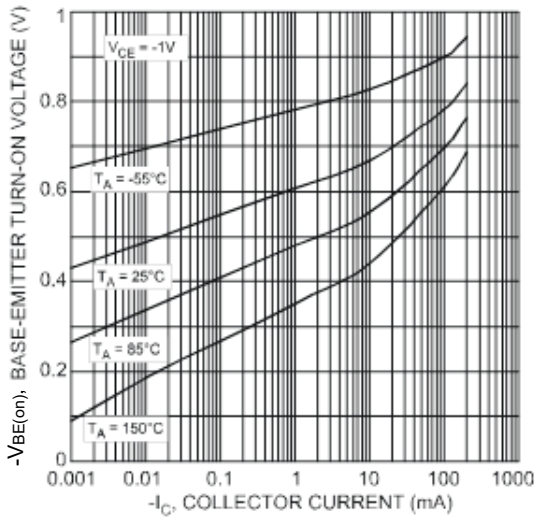


Figure 7. $V_{BE(on)}$ vs. I_C

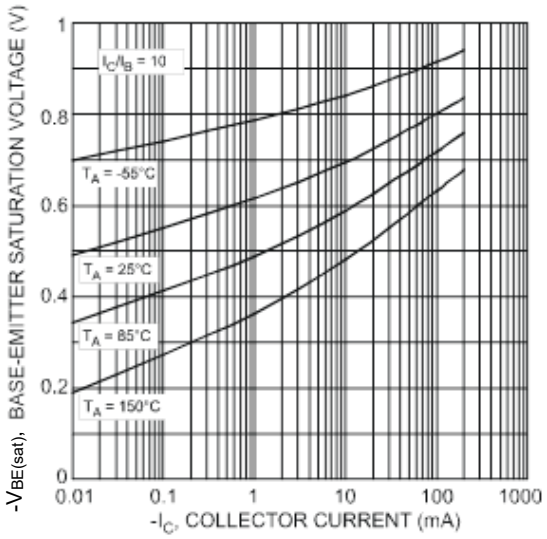


Figure 8. $V_{BE(sat)}$ vs. I_C

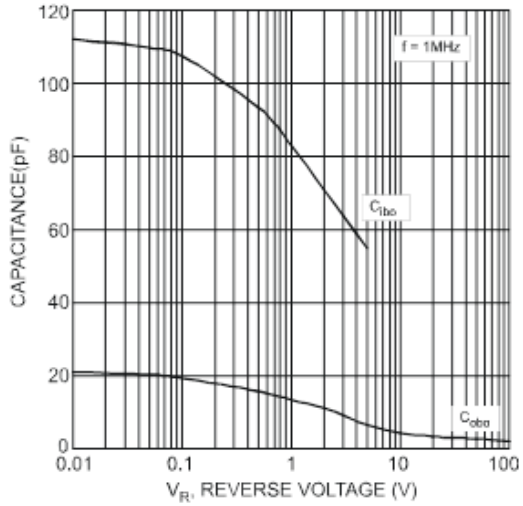


Figure 9. C_{obo} vs. V_R

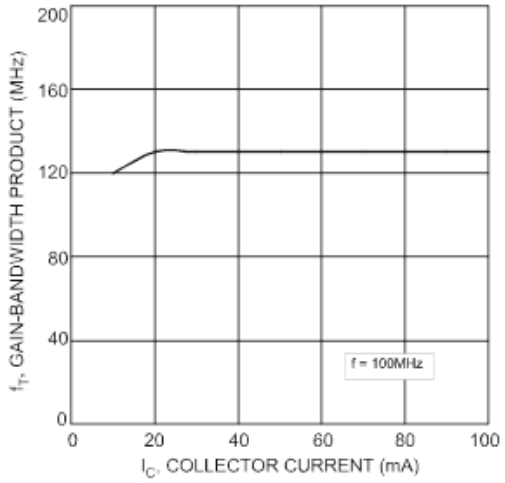
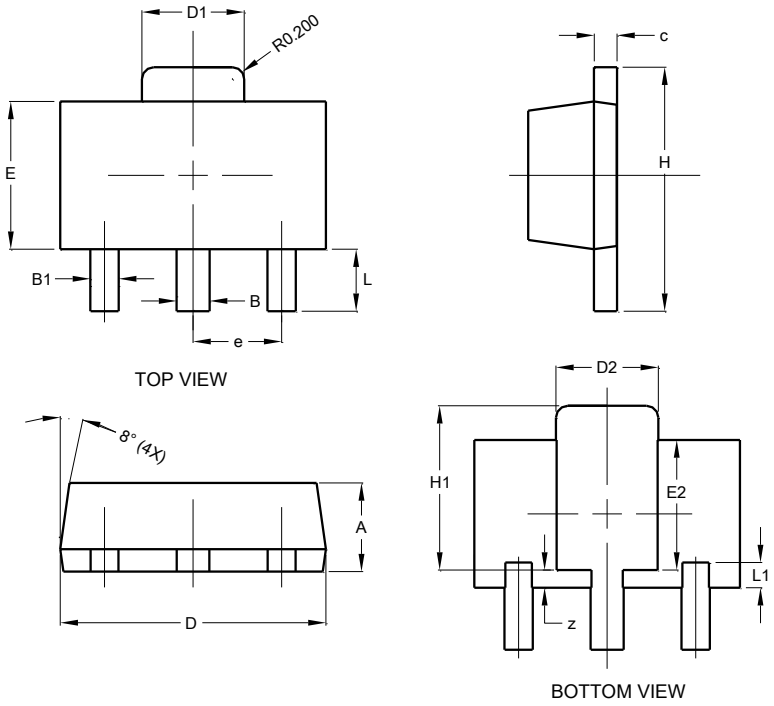


Figure 10. f_T vs. I_C

Package Outline Dimensions

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

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	0.00	0.527	0.327
z	0.20	0.40	0.30
All Dimensions in mm			

Suggested Pad Layout

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

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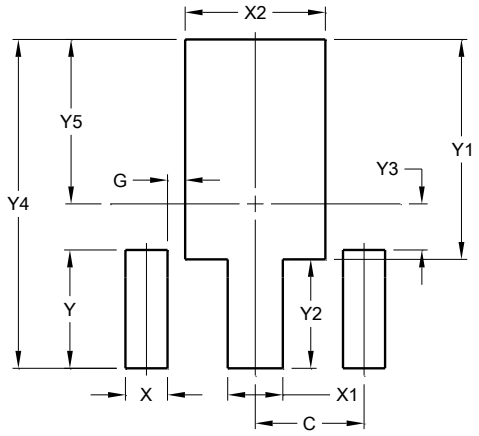

Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.630
Y1	3.030
Y2	1.500
Y3	0.635
Y4	4.530
Y5	2.265

Note: 10. For high-voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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