

Features

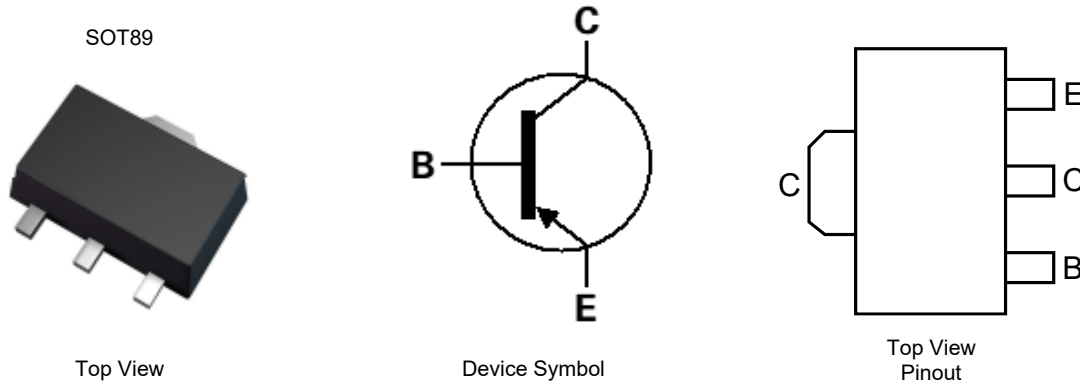
- $BV_{CEO} > -300V$
- $I_C = -500mA$ Continuous Current
- Complementary NPN Type Available ([DXTA42](#))
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications 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 
- Weight: 0.072 grams (Approximate)

Applications

- Epitaxial planar die construction
- Medium power switching or amplification

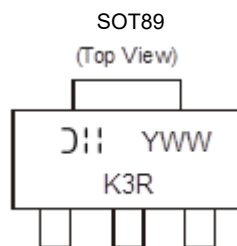


Ordering Information (Note 4)

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



 = Manufacturer's Marking
 K3R = Product Type Marking Code
 YWW = Date Code Marking
 Y or Y̅ = 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 _{CB0}	-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 _{θJA}	125	°C/W
	(Note 6)		78	
	(Note 7)		62.5	
Thermal Resistance, Junction to Lead	(Note 8)	R _{θJL}	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

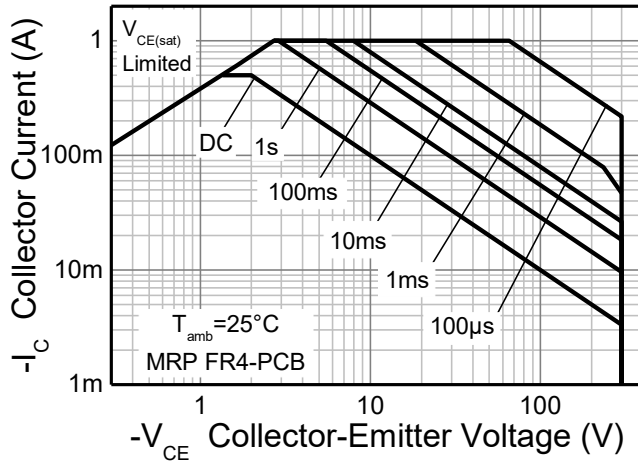


Figure 1. Safe Operating Area

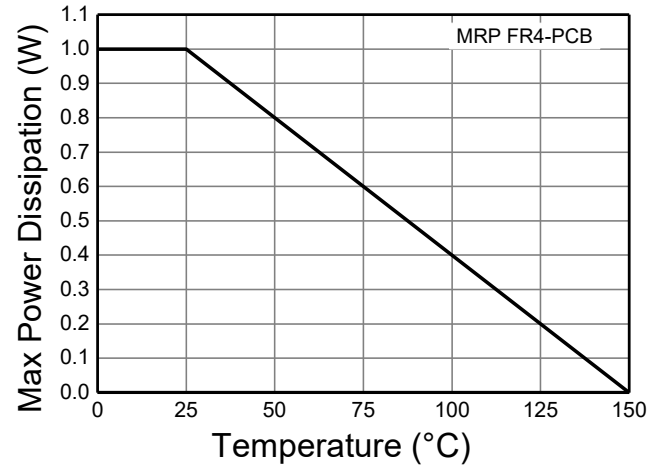


Figure 2. Derating Curve

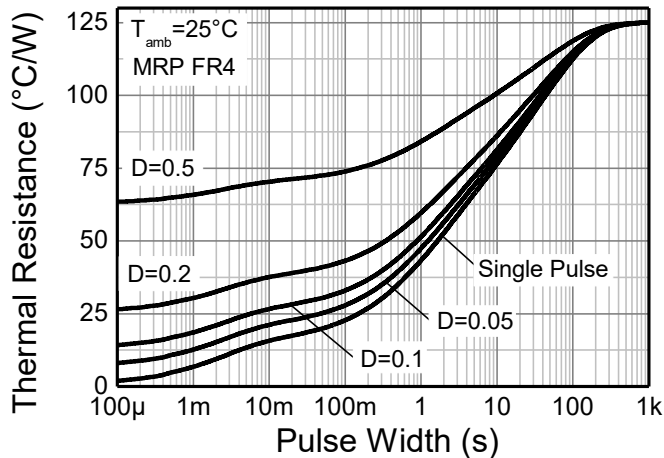


Figure 3. Transient Thermal Impedance

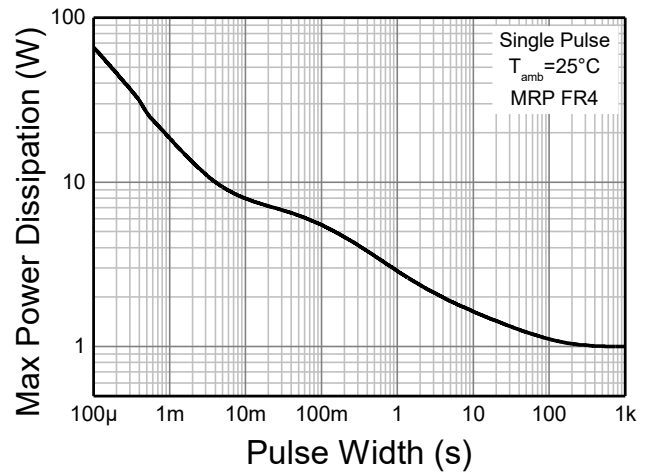


Figure 4. Pulse Power Dissipation

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

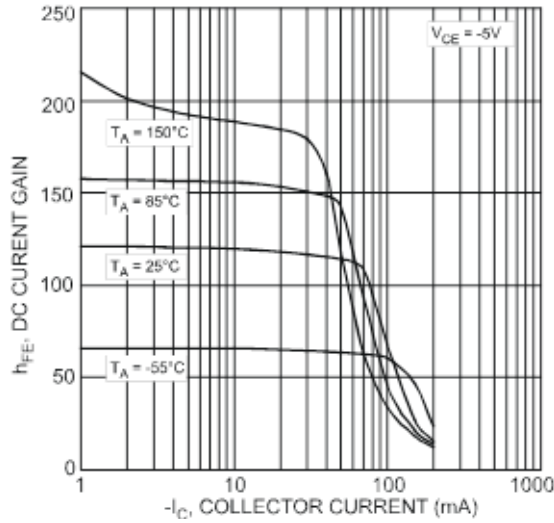


Figure 5. h_{FE} vs. I_C

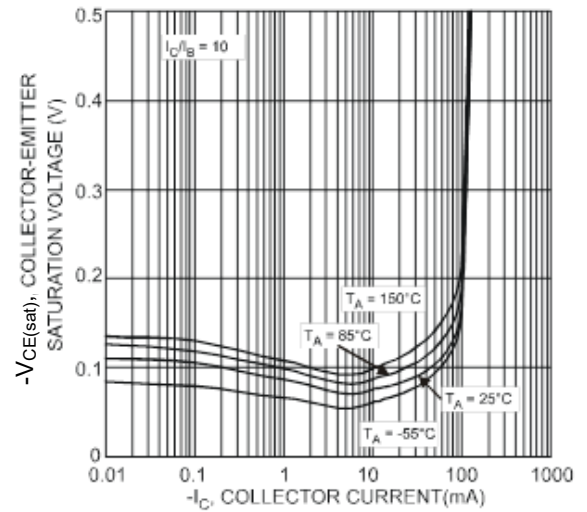


Figure 6. $V_{CE(sat)}$ vs. I_C

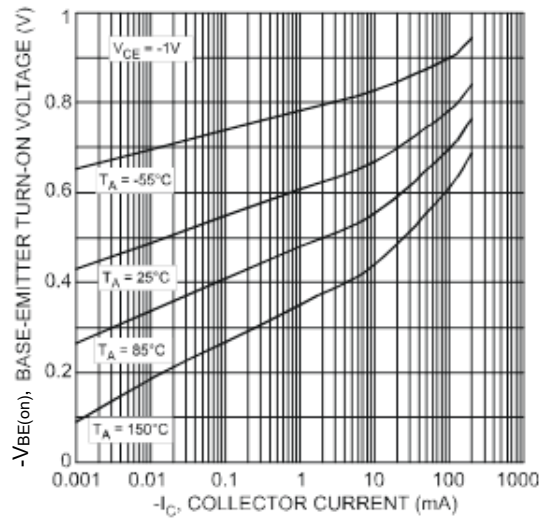


Figure 7. $V_{BE(on)}$ vs. I_C

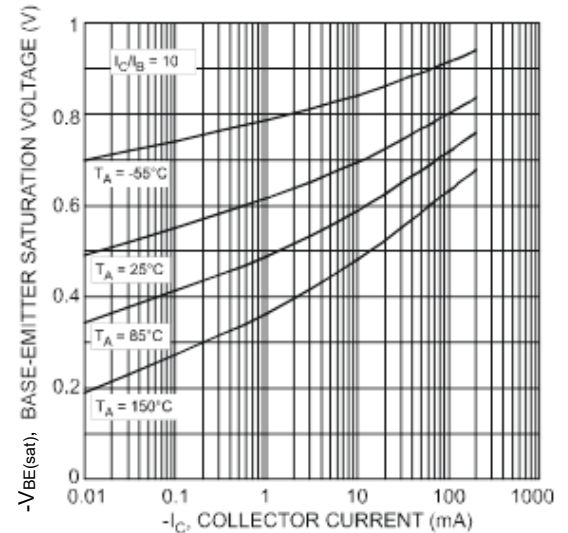


Figure 8. $V_{BE(sat)}$ vs. I_C

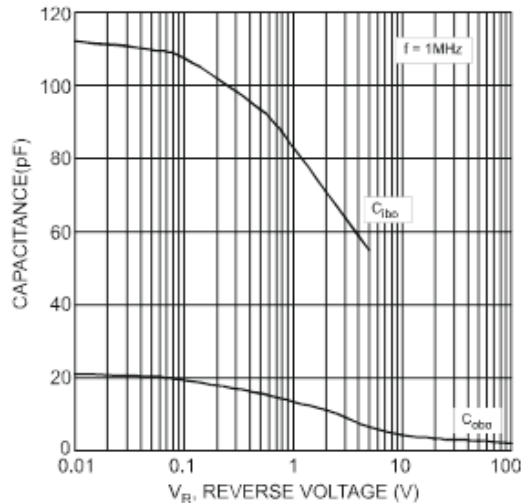


Figure 9. C_{obo} vs. V_R

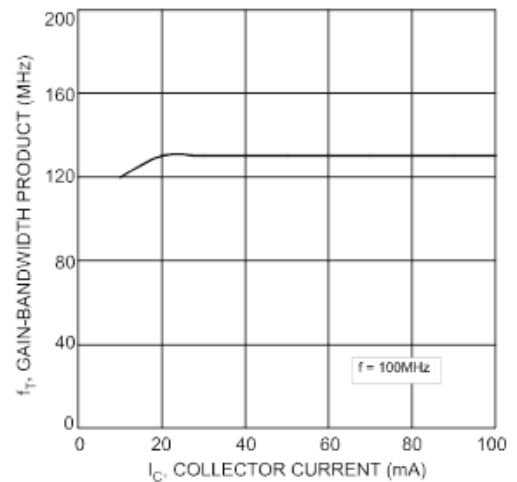
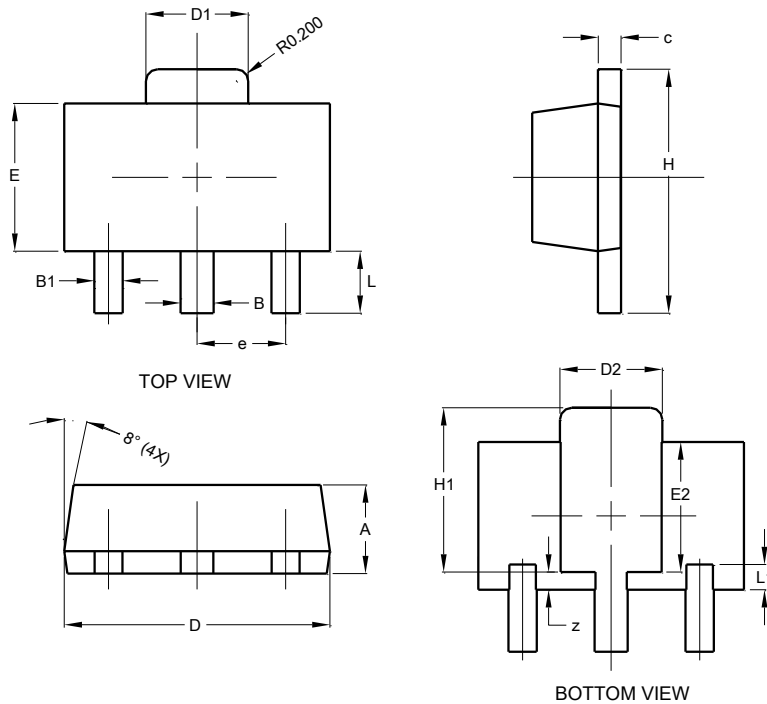


Figure 10. f_T vs. I_C

Package Outline Dimensions

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

SOT89

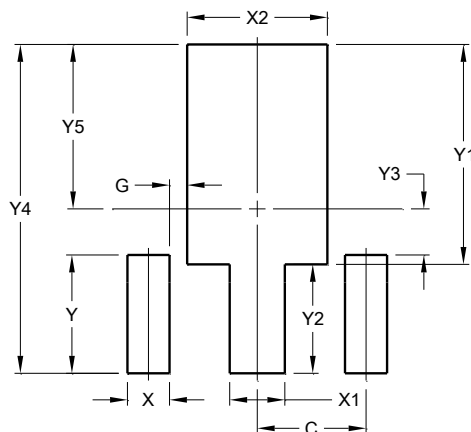


SOT89			
Dim	Min	Max	Typ
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.00	0.527	0.327
z	0.20	0.40	0.30
All Dimensions in mm			

Suggested Pad Layout

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

SOT89



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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