

# NPN Power Silicon Transistor

## 2N5339



### Features

- Available in JAN, JANTX, JANTXV and JANS per MIL-PRF-19500/560
- TO-39 (TO-205AD) Package



### Maximum Ratings

Ratings	Symbol	Value	Units
Collector - Emitter Voltage	$V_{CEO}$	100	Vdc
Collector - Base Voltage	$V_{CBO}$	100	Vdc
Emitter - Base Voltage	$V_{EBO}$	6.0	Vdc
Base Current	$I_B$	1.0	Adc
Collector Current	$I_C$	5.0	Adc
Total Power Dissipation @ $T_A = 25\text{ }^\circ\text{C}$ @ $T_C = 25\text{ }^\circ\text{C}$	$P_T$	1.0 17.5	W
Operating & Storage Temperature Range	$T_{op}, T_{stg}$	-65 to +200	$^\circ\text{C}$
Thermal Resistance, Junction-to-Air	$R_{\theta JC}$	175	$^\circ\text{C/W}$

### Electrical Characteristics

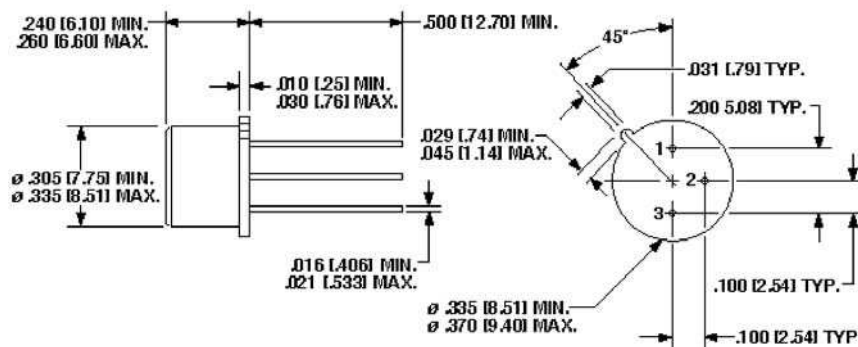
OFF Characteristics	Symbol	Minimum	Maximum	Units
Collector - Emitter Breakdown Voltage $I_C = 50\text{ mA}$	$V_{(BR)CEO}$	100	---	Vdc
Collector - Emitter Cutoff Current $V_{CE} = 100\text{ Vdc}$	$I_{CEO}$	---	100	$\mu\text{Adc}$
Collector - Emitter Cutoff Current $V_{CE} = 100\text{ Vdc}, V_{BE} = 1.5\text{ Vdc}$	$I_{CEX}$	---	1.0	$\mu\text{Adc}$
Collector-Base Cutoff Current $V_{CB} = 90\text{ Vdc}$	$I_{CBO}$	---	1.0	$\mu\text{Adc}$
Emitter - Base Cutoff Current $V_{EB} = 6.0\text{ Vdc}$	$I_{EBO}$	---	100	$\mu\text{Adc}$
ON Characteristics				
Forward Current Transfer Ratio $I_C = 0.5\text{ Adc}, V_{CE} = 2.0\text{ Vdc}$ $I_C = 2.0\text{ Adc}, V_{CE} = 2.0\text{ Vdc}$ $I_C = 5.0\text{ Adc}, V_{CE} = 2.0\text{ Vdc}$	$H_{FE}$	60 60 40	--- 240 ---	
Collector - Emitter Saturation Voltage $I_C = 2.0\text{ Adc}, I_B = 0.2\text{ Adc}$ $I_C = 5.0\text{ Adc}, I_B = 0.5\text{ Adc}$	$V_{CE(sat)}$	--- ---	0.7 1.2	Vdc
Base - Emitter Saturation Voltage $I_C = 2.0\text{ Adc}, I_B = 0.2\text{ Adc}$ $I_C = 5.0\text{ Adc}, I_B = 0.5\text{ Adc}$	$V_{BE(sat)}$	---	1.2 1.8	Vdc



**Electrical Characteristics -con't**

DYNAMIC Characteristics	Symbol	Mimimum	Maximum	Units
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 0.5 \text{ Adc}, V_{CE} = 10.0 \text{ Vdc}, f = 10 \text{ MHz}$	$  h_{fe}  $	3	15	
Output Capacitance $V_{CB} = 10.0 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{obo}$	---	250	pF
Input Capacitance $V_{CB} = 2.0 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	$C_{ibo}$	---	1,000	pF
<b>SAFE OPERATING AREA</b>				
<b>DC Tests:</b>	$T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t = 0.5 \text{ s}$			
<b>Test 1:</b>	$V_{CE} = 2.0 \text{ Vdc}, I_C = 5.0 \text{ Adc}$			
<b>Test 2:</b>	$V_{CE} = 5.0 \text{ Vdc}, I_C = 2.0 \text{ Adc}$			
<b>Test 3:</b>	$V_{CE} = 90.0 \text{ Vdc}, I_C = 55 \text{ mAdc}$			

**Outline Drawing**



NOTE: Dimensions in Inches [mm]

**Aeroflex / Metelics, Inc.**

975 Stewart Drive,  
Sunnyvale, CA 94085  
Tel: (408) 737-8181  
Fax: (408) 733-7645

Sales: 888-641-SEMI (7364)

**Hi-Rel Components**

9 Hampshire Street,  
Lawrence, MA 01840  
Tel: (603) 641-3800  
Fax: (978) 683-3264

[www.aeroflex.com/metelics-hirelcomponents](http://www.aeroflex.com/metelics-hirelcomponents)

54 Grenier Field Road,  
Londonderry, NH 03053  
Tel: (603) 641-3800  
Fax: (603)-641-3500

**ISO 9001: 2008 certified companies**

[www.aeroflex.com/metelics](http://www.aeroflex.com/metelics)      [metelics-sales@aeroflex.com](mailto:metelics-sales@aeroflex.com)

Aeroflex / Metelics, Inc. reserves the right to make changes to any products and services herein at any time without notice. Consult Aeroflex or an authorized sales representative to verify that the information in this data sheet is current before using this product. Aeroflex does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by Aeroflex; nor does the purchase, lease, or use of a product or service from Aeroflex convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual rights of Aeroflex or of third parties.

Copyright 2011 Aeroflex / Metelics. All rights reserved.



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.