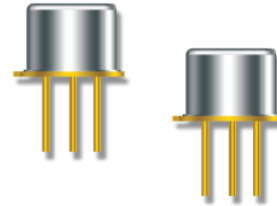


2N5339

FEATURES

- JAN, JANTX, JANTXV, JANS, and JANSR 100K rad (si) per MIL-PRF-19500/560
- TO-39 (TO-205AD) Package



ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITION	SYMBOL	UNITS	MIN	MAX
OFF CHARACTERISTICS					
Collector – Emitter Breakdown Voltage	$I_C = 50 \text{ mA dc}$	$V_{(BR)CEO}$	Vdc	100	—
Collector – Emitter Cutoff Current	$V_{CE} = 100 \text{ V dc}$ $V_{CE} = 90 \text{ V dc}, V_{BE} = 1.5 \text{ V dc}$	I_{CEO} I_{CEX}	$\mu\text{A dc}$	—	100 1.0
Collector – Base Cutoff Current	$V_{CB} = 100 \text{ V dc}$	I_{CBO}	$\mu\text{A dc}$	—	1.0
Emitter – Base Cutoff Current	$V_{EB} = 6.0 \text{ V dc}$	I_{EBO}	$\mu\text{A dc}$	—	100
ON CHARACTERISTIC¹					
Forward Current Transfer Ratio	$I_C = 0.5 \text{ A dc}, V_{CE} = 2.0 \text{ V}$ $I_C = 2.0 \text{ A dc}, V_{CE} = 2.0 \text{ V}$ $I_C = 0.5 \text{ A dc}, V_{CE} = 2.0 \text{ V}$	h_{FE}	—	60 60 40	— 240 —
Collector - Emitter Saturation Voltage	$I_C = 2.0 \text{ A dc}, I_B = 0.2 \text{ A dc}$ $I_C = 5.0 \text{ A dc}, I_B = 0.5 \text{ A dc}$	$V_{CE(sat)}$	V dc	—	0.7 1.2
Emitter - Base Saturation Voltage	$I_C = 150 \text{ A dc}, I_B = 0.2 \text{ A dc}$ $I_C = 150 \text{ A dc}, I_B = 0.5 \text{ A dc}$	$V_{BE(sat)}$	V dc	—	1.2 1.8
DYNAMIC CHARACTERISTICS					
Magnitude of Common Emitter Small Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 0.5 \text{ A dc}, V_{CE} = 10.0 \text{ V dc}, f = 10 \text{ MHz}$	$ h_{FE} $	—	3	15
Output Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{obo}	pF	—	250
Input Capacitance	$V_{BE} = 2 \text{ V dc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{ibo}	pF	—	1000
SAFE OPERATING AREA					
DC Tests:	$T_C = +25 \text{ }^\circ\text{C}, 1 \text{ Cycle}, t \geq 0.5 \text{ s}$				
Test 1:	$V_{CE} = 2 \text{ V dc}, I_C = 5 \text{ A dc}$				
Test 2:	$V_{CE} = 5 \text{ V dc}, I_C = 2 \text{ A dc}$				
Test 3:	$V_{CE} = 90 \text{ V dc}, I_C = 55 \text{ mA dc}$				

NOTES:

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

ABSOLUTE MAXIMUM RATINGS

RATING	SYMBOL	VALUE
Collector - Emitter Voltage	V_{CEO}	100 V dc
Collector - Base Voltage	V_{CBO}	100 V dc
Emitter - Base Voltage	V_{EBO}	6 V dc
Base Current	I_B	1 A dc
Collector Current	I_C	5 A dc
Total Power Dissipation @ $T_A = 25\text{ }^\circ\text{C}$ @ $T_C = 25\text{ }^\circ\text{C}$	P_T	1.0 W 17.5 W
Operating and Storage Temperature Range	T_{OP}, T_{STG}	-65 $^\circ\text{C}$ to +200 $^\circ\text{C}$

NOTES:

1. Derate linearly 434 mW / $^\circ\text{C}$ for $T_C = 25\text{ }^\circ\text{C}$

THERMAL CHARACTERISTICS

CHARACTERISTICS	SYMBOL	MAXIMUM VALUE
Thermal Resistance, Junction to Case	$R_{\theta JC}$	10 $^\circ\text{C}/\text{W}$

OUTLINE DRAWING

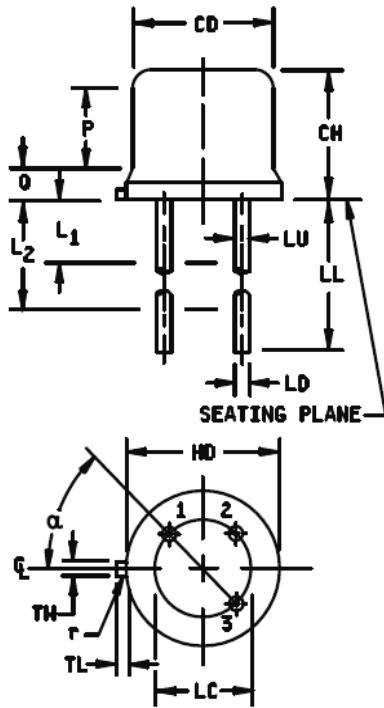


FIGURE 1. Physical dimensions (TO-39).

SYMBOL	INCHES		MILLIMETER		NOTES
	Min.	Max	Min	Max	
CD	.305	.355	7.75	9.02	5
CH	.240	.260	6.10	6.60	
HD	.335	.370	8.51	9.40	3
LC	.200 TP		5.08 TP		6
LD	.016	.021	.41	.53	7
LL	.500	.750	12.70	19.05	7
LU	.016	.019	.41	.48	7
L ₁	-	.050	-	1.27	7
L ₂	.250		6.35		7
TL	.029	.045	.74	1.14	3
TW	.028	.034	.71	.86	10
P	.100	-	2.54	-	5
Q	-	.050	-	1.27	4
r	-	.010	-	.25	10, 11
α	45° TP		45° TP		6
Notes	1, 2, 8, 9		1, 2, 8, 9		

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Symbol TL is measured from HD maximum.
4. Details of outline in this zone are optional.
5. Symbol CD shall not vary more than .010 (0.25 mm) in zone P. This zone is controlled for automatic handling.
6. Leads at gauge plane 0.54 inch (1.37 mm) + .001 inch (0.03 mm) - .000 inch (0.00 mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) relative to tab. Device may be measured by direct methods or by gauge.
7. Symbol LD applies between L₁ and L₂. Dimension LD applies between L₂ and LL minimum.
8. Lead designation, depending on device type, shall be as follows: Lead number 1 is emitter; Lead number 2 is base; Lead number 3 is collector.
9. Lead number three is electrically connected to case.
10. Beyond r maximum, TW shall be held for a minimum length of .011 inch (0.28 mm)
11. Symbol r applied to both inside corners of tab.
12. In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.

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