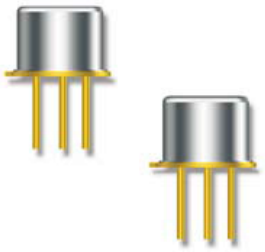
2N232x Series

Silicon Controlled Rectifier

Rev. V2

Features

- Available in JAN, JANTX, JANTXV per MIL-PRF-19500/276
- TO-5 & TO-39 (TO-205AD) Package



Electrical Characteristics

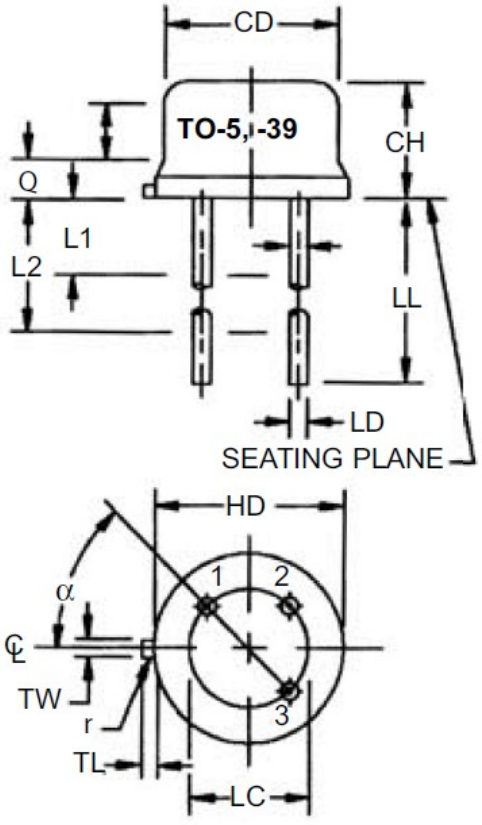
Characteristics			Symbol	Min.	Max.	Units
Subgroup 2 Testing						
Reverse Blocking Current	R_2 = 1 kΩ R_2 = 2 kΩ V_R = 50 Vdc V_R = 100 Vdc V_R = 200 Vdc V_R = 300 Vdc V_R = 400 Vdc	2N2323, S - 2N2329, S 2N2323A, AS - 2N2329A, AS 2N2323, S, A, AS 2N2324, S, A, AS 2N2326, S, A, AS 2N2328, S, A, AS 2N2329, S, A, AS	$I_{RBX}1$	—	10	µAdc
Forward Blocking Current	R_2 = 1 kΩ R_2 = 2 kΩ V_R = 50 Vdc V_R = 100 Vdc V_R = 200 Vdc V_R = 300 Vdc V_R = 400 Vdc	2N2323, S - 2N2329, S 2N2323A, AS - 2N2329A, AS 2N2323, S, A, AS 2N2324, S, A, AS 2N2326, S, A, AS 2N2328, S, A, AS 2N2329, S, A, AS	$I_{FBX}1$	—	10	µAdc
Reverse Gate Current (V_{KG} = 6 Vdc)			I_{kg}	—	200	µAdc
Gate Trigger Voltage & Current $V_2 = V_{FBX}$ = 6 Vdc; R_L = 100 W	R_e = 1 kΩ R_e = 2 kΩ	2N2323, S - 2N2329, S 2N2323A, AS - 2N2329A, AS	$V_{GT}1$ $I_{GT}1$ $V_{GT}1$ $I_{GT}1$	0.35 — 0.35 —	0.80 200 0.60 20	Vdc µAdc Vdc µAdc
Subgroup 4 Testing						
Exponential Rate of Voltage Rise T_A = 125°C 50 Ω ≤ R_L ≤ 400 W, C = 0.1 to 1.0 µF, repetition rate = 60 pps, test duration = 15 seconds	dv/dt = 1.8 v/µs, R_3 = 1 kΩ dv/dt = 0.7 v/ms, R_3 = 2 kW V_R = 50 Vdc V_R = 100 Vdc V_R = 200 Vdc V_R = 300 Vdc V_R = 400 Vdc	2N2323, S - 2N2329, S 2N2323A, AS - 2N2329A, AS 2N2323, S, A, AS 2N2324, S, A, AS 2N2326, S, A, AS 2N2328, S, A, AS 2N2329, S, A, AS	V_{FBX}	47 95 190 285 380	—	Vdc
Forward "on" Voltage I_{FM} = 4a (pk) (pulse), pulse width = 8.5 ms, max; duty cycle = 2% max.			V_{FM}	—	2.2	V(pk)
Holding Current V_{AA} = 24 Vdc max., I_F1 = 100 mAdc, I_F2 = 10 mAdc Gate trigger source voltage = 6 Vdc, trigger pulse width = 25 ms min. R_2 = 330 Ω	R_3 = 1 kΩ R_3 = 2 kΩ	2N2323, S - 2N2329, S 2N2323A, AS - 2N2329A, AS	I_{HOX}	—	2	mAdc

Absolute Maximum Ratings

Ratings	Symbol	2N2323, S/ 2N2323A, S	2N2324, S/ 2N2324A, S	2N2326, S/ 2N2326A, S	2N2328, S/ 2N2328A, S	2N2329, S/ 2N2329A, S	Unit
Reverse Voltage	V_{RM}	50	100	200	300	400	Vdc
Working Peak Reverse Voltage	V_{RM}	75	150	300	400	500	Vpk
Forward Blocking Voltage	V_{FBXM}	50[3,4]	100[3,4]	200[3,4]	300[3,4]	400[3]	Vpk
Average Forward Current[1]	I_O	0.22					Adc
Forward Current Surge Peak[2]	I_{FSM}	15					Adc
Cathode-Gate Current	V_{KGM}	6					Vpk
Operating Temperature	T_{OP}	-65 to +125					°C
Storage Junction Temperature	T_{STG}	-65 to +150					°C

1. This average forward current is for an ambient temperature of 80°C and 180 electrical degrees of conduction.
2. Surge current is non-recurrent. The rate of rise of peak surge current shall not exceed 40 A during the first 5 µs after switching from the 'off' (blocking) to the 'on' (conducting) state. This is measured from the point where the thyristor voltage has decayed to 90% of its initial blocking value.
3. Gate connected to cathode through 1,000 ohm resistor.
4. Gate connected to cathode through 2,000 ohm resistor.

Outline Drawing (TO-5 & TO-39)



LTR	Dimensions				Note
	Inches		Millimeters		
	MIN	MAX	MIN	MAX	
CD	0.305	0.335	7.75	8.51	—
CH	0.240	0.260	6.10	6.60	—
HD	0.335	0.370	8.51	9.40	—
LC	0.200 TP		5.08 TP		7
LD	0.016	0.021	0.041	0.053	8, 9
LL					8,11,14
LU	0.016	0.019	0.041	0.048	8, 9
L1	—	0.050	—	1.27	8, 9
L2	0.250	—	6.35	—	8, 9
P	0.100	—	2.54	—	7
Q	—	0.050	—	1.27	5
TL	0.029	0.045	0.74	1.14	—
TW	0.028	0.034	0.71	0.86	—
r	—	0.010	—	0.25	10
α	45° TP		45° TP		7
1, 2, 10, 12, 13, 14					

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Beyond r (radius) maximum, TW shall be held for a minimum length of .011 (0.28 mm).
4. Dimension TL measured from maximum HD.
5. Body contour optional within zone defined by HD, CD, and Q.
6. CD shall not vary more than 0.010 inch (0.25 mm) in zone P. This zone is controlled for automatic handling.
7. Leads at gauge plane 0.054 +0.001 –0.000 inch (1.37 +0.03 -0.00 mm) below seating plane shall be within 0.007 inch (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC. The device may be measured by direct methods or by gauging procedure.
8. Dimension LU applies between L, and L,. Dimension LD applies between L, and LL minimum. Diameter is uncontrolled in and beyond LL minimum.
9. All three leads.
10. The collector shall be internally connected to the case.
11. Dimension r (radius) applies to both inside corners of tab.
12. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.
13. Lead 1 = emitter, lead 2 = base, lead 3 = collector.
14. For non-S-suffix devices (T0-5), dimension LL = 1.5 inches (38.10 mm) min. and 1.75 inches (44.45 mm) max. For S-suffix types (T0-39), dimension LL = 0.5 inch (12.70 mm) min. and 750 inch (19.05 mm) max.