DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

2N1875-2N1880

SILICON CONTROLLED RECTFIERS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	2N1875	2N1876	2N1877	2N1878	2N1879	2N1880	Unit
Repetitive peak off-state voltage	V_{DRM}	15	30	60	100	150	200	V
Repetitive peak reverse voltage	V_{RRM}	15	30	60	100	150	200	V
DC on-state current 100°C ambient 100°C case	I_T	250 1.25						 mA A
Repetitive peak on-state current	I_{TRM}	Up to 30						A
Peak one cycle surge (non-repetitive) on-state current	I_{TSM}	15						A
Peak gate current	I_{GM}	250						mA
Average gate current	$I_{G(AV)}$	25						mA
Reverse gate voltage	V_{GR}	5						V
Thermal resistance, junction to case	$R_{\Theta JC}$	20						°C/W
Operating and storage temperature range	T_J, T_{stg}	-65 to 150						°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Characteristics	Symbol	Min	Typ	Max	Unit	Test Condition
Subgroup 2 (25°C test)						
Off-state current	I_{DRM}	-	0.5	5	µA	V_{DRM} = rating, R_{GK} = 1KΩ
Reverse current	I_{RRM}	-	0.5	10	µA	V_{RRM} = rating
Reverse gate current	I_{GR}	-	0.5	10	µA	V_{GR} = 2V
Gate trigger current	I_{GT}	-	5	20	µA	V_D = 5V, R_{GS} = 10KΩ
Gate trigger voltage	V_{GT}	0.44	0.52	0.60	V	V_D = 5V, R_{GS} = 100Ω
Anode trigger current (1)	I_{AT}	-	100	-	µA	V_D = 5V
On-state voltage	V_T	0.8	1.8	2.5	V	I_T = 2A(pulse test)
Holding current	I_H	0.3	1.0	3	mA	I_G = -150µA, V_{AA} = 5V
Subgroup 3 (25°C test)						
Turn-on time	t_{on}	-	0.1	-	µs	I_G = 20mA, I_T = 0.5A, V_D = 30V
Turn-off time	t_{off}	-	0.5	-	µs	
Gate trigger – on pulse width	$t_{pg(on)}$	-	0.5	-	µs	
Circuit commutated turn-off time	t_q	-	10	-	µs	I_T = 0.5A, I_R = 0.5A, R_{GK} = 1KΩ
Subgroup 4 (125°C test)						
High temperature off-state current	I_{DRM}	-	5	20	µA	V_D = rating, R_{GK} = 1KΩ
High temperature reverse current	I_{RRM}	-	15	100	µA	V_{RRM} = rating

Note 1: For a maximum limit of 50µA, use suffix "-1" and drop 2N.
Voltage ratings apply over the operating temperature range, provided the gate is connected to the cathode through an appropriate resistor, or adequate gate bias is used.

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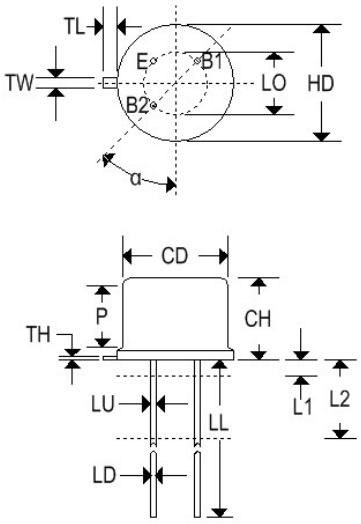
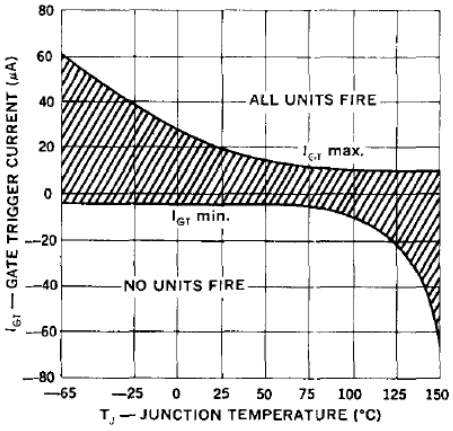
MECHANICAL CHARACTERISTICS

Case:	TO-5
Marking:	Body painted, alpha-numeric
Pin out:	See below



Dim	TO-5			
	Inches		Millimeters	
	Min	Max	Min	Max
HD	0.335	0.370	8.510	9.400
CD	0.305	0.335	7.750	8.510
CH	0.240	0.260	6.100	6.600
LL	1.500	-	38.100	-
LD	0.016	0.021	0.410	0.530
LU	0.016	0.019	0.410	0.480
P	0.100	-	2.540	-
TL	0.029	0.045	0.740	1.140
TW	0.028	0.034	0.710	0.860
TH	0.009	0.125	0.230	3.180
LO	0.141 NOM		3.590 NOM	
α	45°TP		45°TP	

1. Gate Trigger Current



2. Gate Trigger Voltage