DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MCR201-MCR206

SILICON CONTROLLED RECTIFIERS

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	Value	Unit
Peak off-state and reverse voltage MCR201 MCR202 MCR203 MCR204 MCR205 MCR206	V_{DRM}, V_{RRM}	 15 30 60 100 150 200	Volts
RMS on-state current (all conduction angles)	$I_{T(RMS)}$	0.5	Amp
Peak non-repetitive forward surge current (1/2 cycle, sine wave, 60Hz)	I_{TSM}	6.0	Amp
Circuit fusing considerations (t = 1.0 to 8.3ms)	I^2t	0.15	A^2s
Peak forward gate power	P_{GM}	0.1	Watt
Average forward gate power	$P_{GF(AV)}$	0.01	Watt
Peak forward gate current (300µs, 120PPS)	I_{GFM}	1.0	Amp
Peak reverse gate voltage	V_{GRM}	4.0	Volts
Operating junction temperature range @ V_{RRM} and V_{DRM}	T_J	-65 to 125	°C
Storage temperature range	T_{stg}	-65 to 150	°C
Thermal resistance, junction to case	$R_{\Theta JC}$	150	°C/W
Thermal resistance, junction to ambient	$R_{\Theta JA}$	400	°C/W

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

Characteristic		Symbol	Min	Max	Unit
Peak forward blocking current Rated V_{DRM} @ T_C = 125°C		I_{DRM}	-	100	µA
Peak reverse blocking current Rated V_{RRM} @ T_C = 125°C		I_{RRM}	-	100	µA
Peak on-state voltage I_{TM} = 1.2A peak, 1ms, duty cycle ≤ 1%		V_{TM}	-	1.7	Volts
Gate trigger current (continuous dc)(1) Anode voltage = 7.0Vdc, R_L = 100ohms)	T_C = 25°C T_C = -65°C	I_{GT}	- -	200 350	µA
Gate trigger voltage (continuous dc) Anode voltage = 7.0Vdc, R_L = 100ohms)	T_C = 25°C T_C = -65°C T_C = 125°C	V_{GT}	- - 0.1	0.8 1.2 -	Volts
Holding current Anode voltage = 7.0Vdc, initiating current = 20mA)	T_C = 25°C T_C = -65°C	I_H	- -	5.0 10	mA

Note 1: R_{GK} current is not included in measurement.

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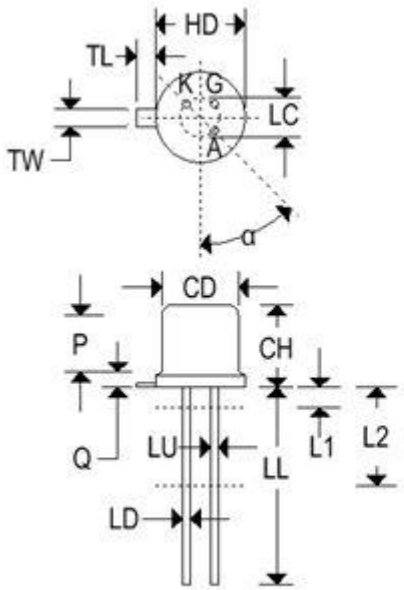
MECHANICAL CHARACTERISTICS

Case	TO-18
Marking	Alpha-numeric
Pin out	See below



Dim	TO-18			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	0.178	0.195	4.520	4.950
CH	0.170	0.210	4.320	5.330
HD	0.209	0.230	5.310	5.840
LC	0.100 TP		2.540 TP	
LD	0.016	0.021	0.410	0.530
LL	0.500	0.750	12.700	19.050
LU	0.016	0.019	0.410	0.480
L_1	-	0.050	-	1.270
L_2	0.250	-	6.350	-
P	0.100	-	2.540	-
Q	-	0.040	-	1.020
TL	0.028	0.048	0.710	1.220
TW	0.036	0.046	0.910	1.170
α	45°TP		45°TP	

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FIGURE 7 – GATE TRIGGER VOLTAGE

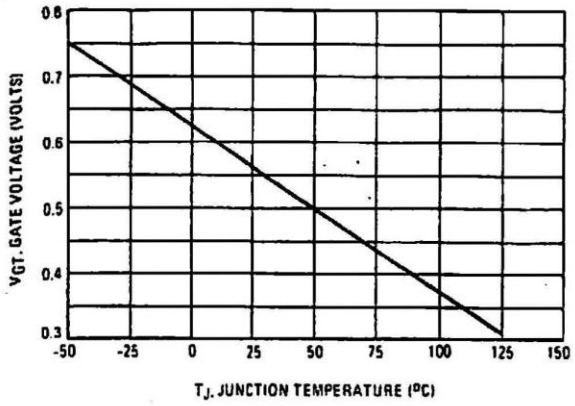

FIGURE 8 – GATE TRIGGER CURRENT

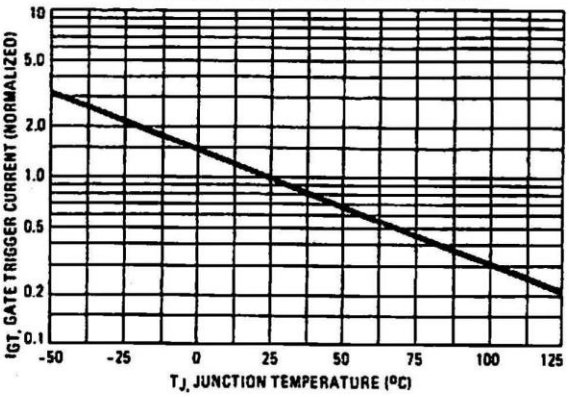

FIGURE 9 – HOLDING CURRENT

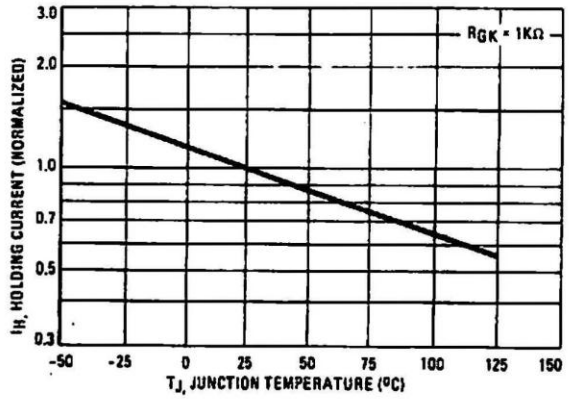

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FIGURE 1 – CURRENT DERATING
(REFERENCE: CASE TEMPERATURE)

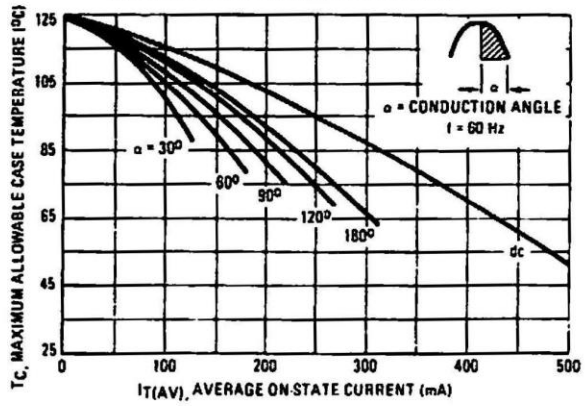

FIGURE 2 – POWER DISSIPATION

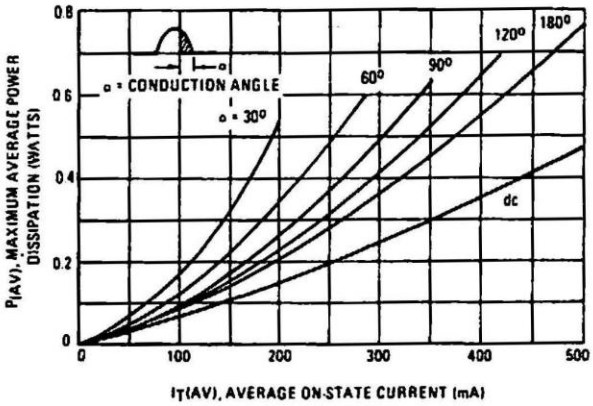

FIGURE 3 – FORWARD VOLTAGE

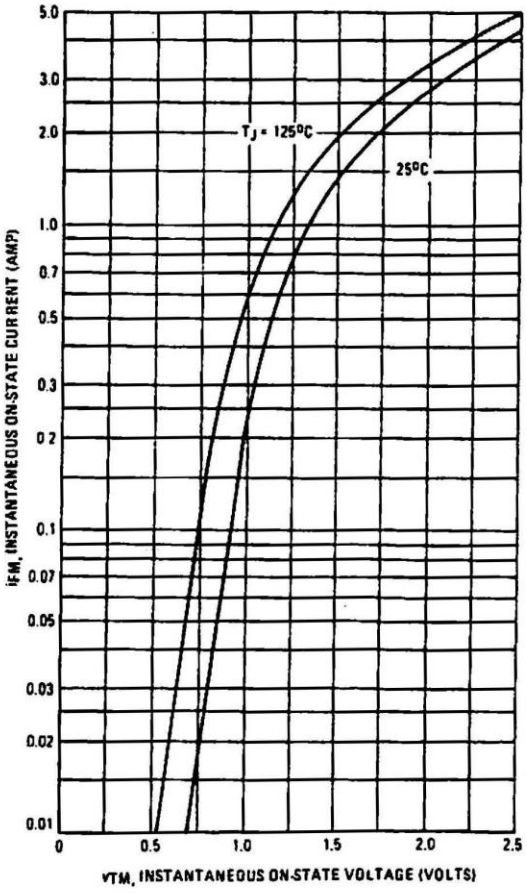

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FIGURE 4 – SURGE RATINGS

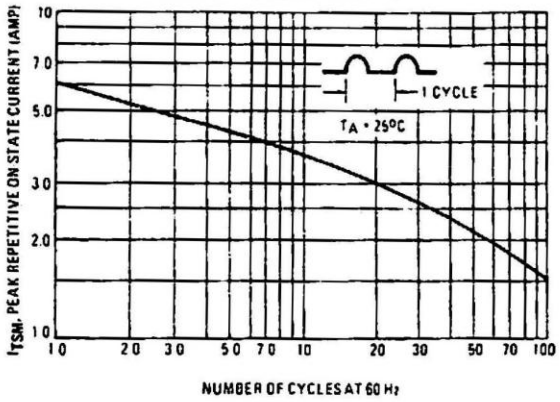

FIGURE 5 – CURRENT DERATING (REFERENCE: AMBIENT TEMPERATURE)

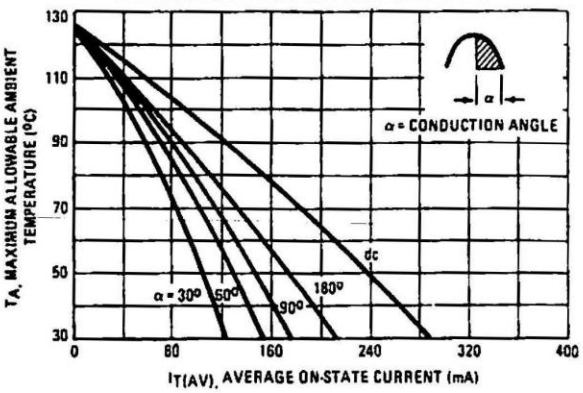

FIGURE 6 – THERMAL RESPONSE