

DIGITRON SEMICONDUCTORS

MCR201-MCR206

SILICON CONTROLLED RECTIFIERS

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).

Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak off-state and reverse voltage			
MCR201	V_{DRM}, V_{RRM}	15	Volts
MCR202		30	
MCR203		60	
MCR204		100	
MCR205		150	
MCR206		200	
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 ² s
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 CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal resistance, junction to case	$R_{\theta JC}$	150	°C/W
Thermal resistance, junction to ambient	$R_{\theta JA}$	400	°C/W

ELECTRICAL CHARACTERISTICS ($R_{GK} = 1000\text{ohms}$)

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

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

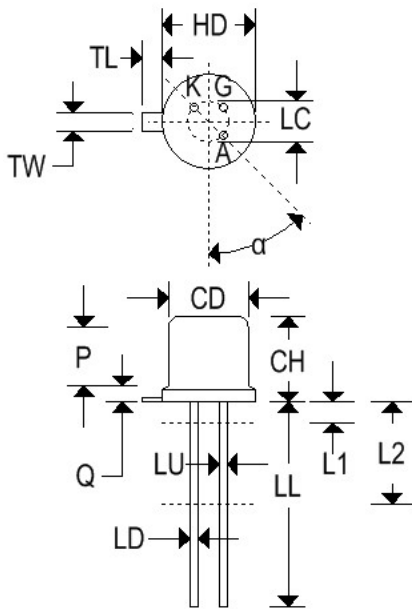
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MECHANICAL CHARACTERISTICS

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



	TO-18			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.209	0.230	5.310	5.840
B	0.178	0.195	4.520	4.950
C	0.170	0.210	4.320	5.330
D	0.016	0.021	0.406	0.533
E	-	0.030	-	0.762
F	0.016	0.019	0.406	0.483
G	0.100 BSC		2.540 BSC	
H	0.036	0.046	0.914	1.170
J	0.028	0.048	0.711	1.220
K	0.500	-	12.700	-
L	0.250	-	6.350	-
M	45° BSC		45° BSC	
N	0.050 BSC		1.270 BSC	
P	-	0.050	-	1.270

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**FIGURE 1 – CURRENT DERATING
(REFERENCE: CASE TEMPERATURE)**

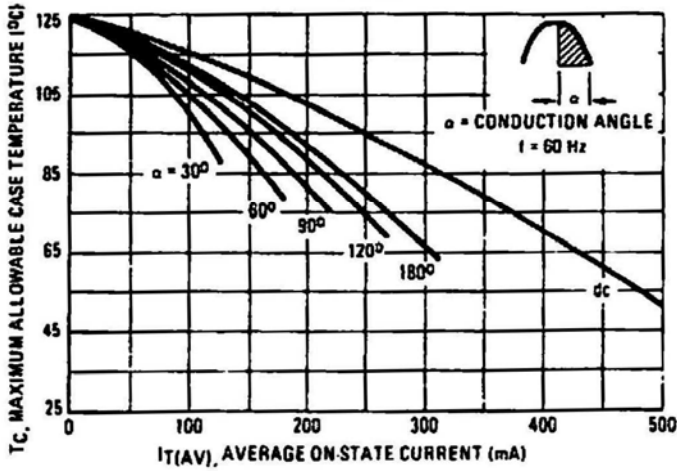


FIGURE 2 – POWER DISSIPATION

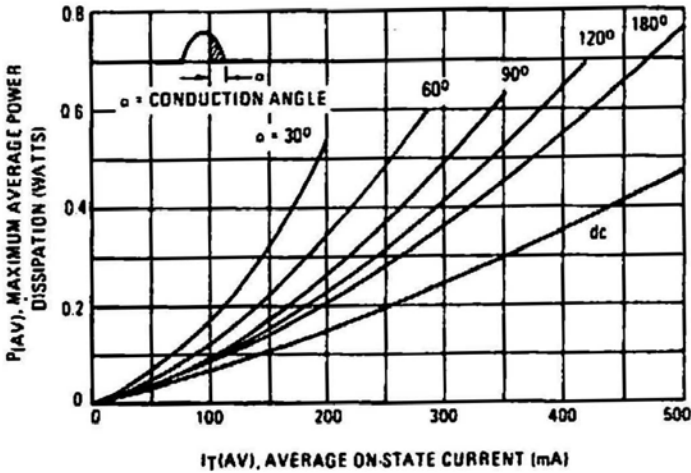


FIGURE 4 – SURGE RATINGS

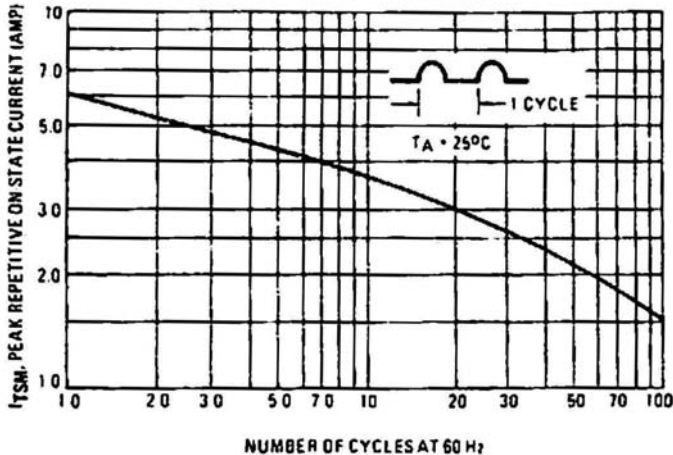
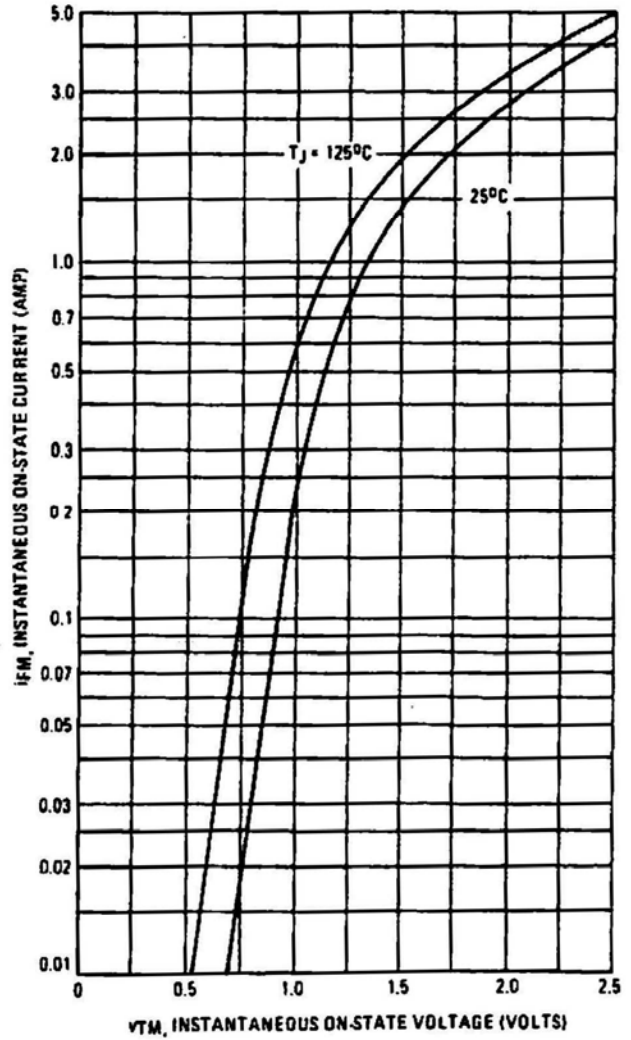
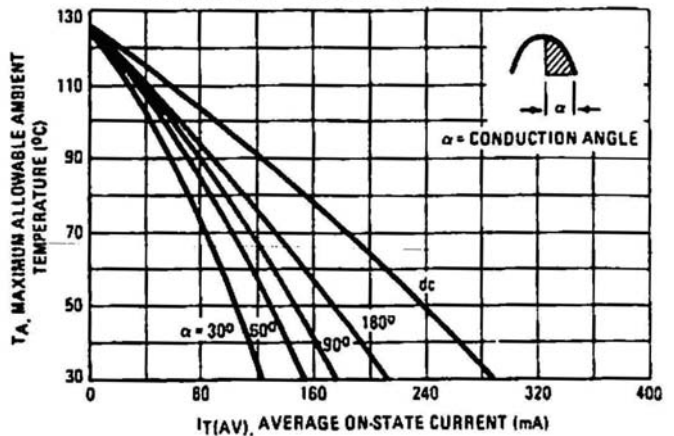


FIGURE 3 – FORWARD VOLTAGE



**FIGURE 5 – CURRENT DERATING
(REFERENCE: AMBIENT TEMPERATURE)**



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FIGURE 6 - THERMAL RESPONSE

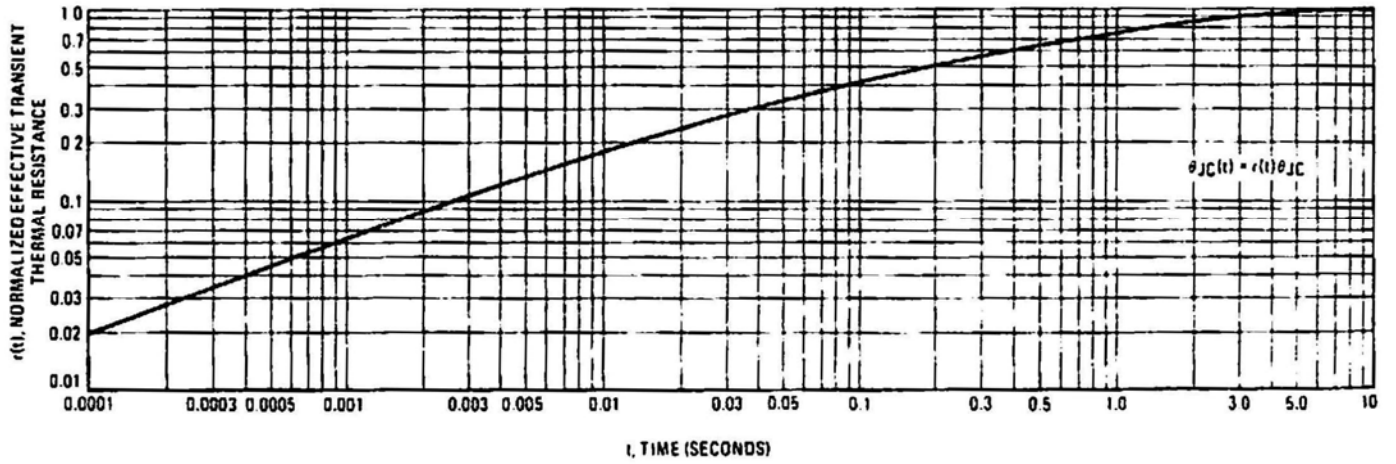


FIGURE 7 - GATE TRIGGER VOLTAGE

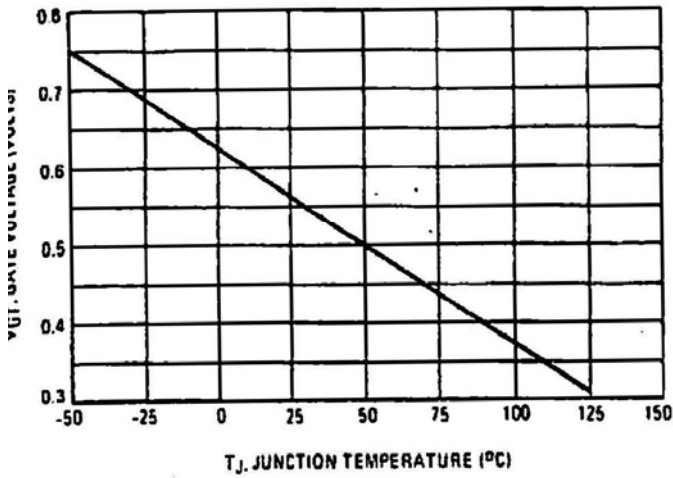


FIGURE 8 - GATE TRIGGER CURRENT

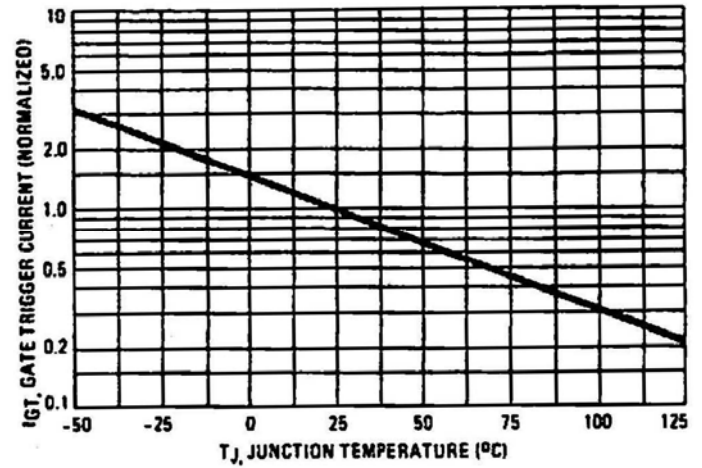


FIGURE 9 - HOLDING CURRENT

