

NOT RECOMMENDED FOR NEW DESIGNS

MOTOROLA SC (DIODES/OPTO) 25E D ■ 6367255 0080897 T ■ T-25-15

Silicon Controlled Rectifiers Reverse Blocking Triode Thyristors

... designed for industrial applications such as motor controls, heater controls, and power supplies, wherever half-wave or dc silicon gate controlled devices are needed.

- Glass Passivated Junctions for Maximum Reliability
- Center Gate Geometry for Parameter Uniformity
- High Surge Current, $I_{TSM} = 260$ A, for Crowbar Service

**2N2574
thru
2N2578
MCR649AP
1 thru 10**

**SCRs
20 and 25 AMPERES RMS
25 thru 800 VOLTS**



**CASE 61-04
STYLE 1
2N2573 thru 2N2579**



**CASE 54-05
STYLE 2
MCR649AP1 thru
MCR649AP10**

MAXIMUM RATINGS ($T_J = 125^\circ\text{C}$ unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage, Note 1 MCR649AP1 2N2574, MCR649AP2 2N2575, MCR649AP3 2N2576, MCR649AP4 2N2578, MCR649AP6 MCR649AP8 MCR649AP9 MCR649AP10	V _{DRM} or V _{RRM}	25 50 100 200 400 600 700 800	Volts
On-State Current 2N Series MCR Series	I _{T(RMS)}	25 20	Amps
Circuit Fusing (t = 8.3 ms) 2N Series MCR Series	I ² t	280 235	A ² s
Peak Surge Current (Half Cycle, 60 Hz, $T_J = -65^\circ$ to $+125^\circ\text{C}$) 2N Series MCR Series	I _{TSM}	260 235	Amps
Peak Gate Power — Forward	P _{GM}	5	Watts
Average Gate Power — Forward	P _{G(AVG)}	0.5	Watt
Peak Gate Current — Forward	I _{GM}	2	Amps
Peak Gate Voltage — Forward Reverse	V _{GFM} V _{GRM}	10 5	Volts
Operating Junction Temperature	T _J	-65 to +125	°C
Storage Temperature	T _{stg}	-65 to +150	°C
Thermal Resistance, Junction to Case	R _{θJC}	1.5	°C/W

Note 1. V_{DRM} and V_{RRM} for all types can be applied on a continuous basis without incurring damage. Ratings apply for zero or negative gate voltage.

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Rated V _{DRM} or V _{RRM} , gate open) T _J = 25°C T _J = 125°C	I _{DRM} , I _{RRM}	—	—	10 5	μA mA
Gate Trigger Current (Continuous dc) (V _D = 7 Vdc, R _L = 100 Ω)	I _{GT}	—	—	40	mA
Gate Trigger Voltage (Continuous dc) (V _D = 7 Vdc, R _L = 100 Ω) (V _D = Rated V _{DRM} , R _L = 100 Ω, T _J = 125°C)	V _{GT}	— 0.3	0.7 —	3.5 —	Volts
Forward On Voltage (I _{TM} = 20 Adc)	V _{TM}	—	1.1	1.4	Volts
Holding Current (V _D = 7 Vdc, Gate Open)	I _H	—	10	—	mA
Turn-On Time (t _d + t _r) (I _{GT} = 50 mA, I _T = 10 A, V _D = Rated V _{DRM})	t _{gt}	—	1	—	μs
Turn-Off Time (I _T = 10 A, I _R = 10 A, dv/dt = 20 V/μs, T _J = 125°C) (V _D = Rated Voltage V _{DRM})	t _q	—	30	—	μs
Forward Voltage Application Rate (Exponential) (Gate Open, T _J = 125°C, V _D = Rated V _{DRM})	dv/dt	—	30	—	V/μs

FIGURE 1 - CURRENT DERATING

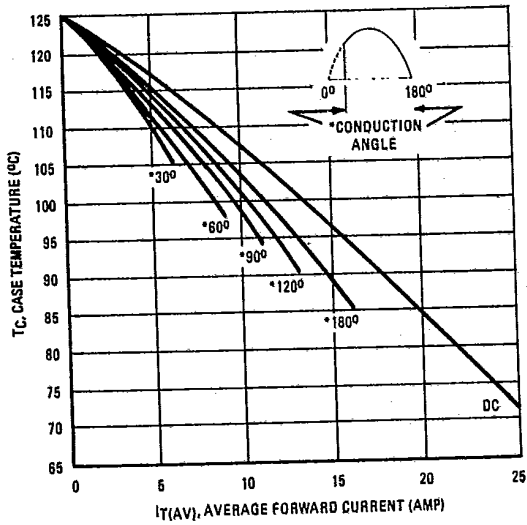
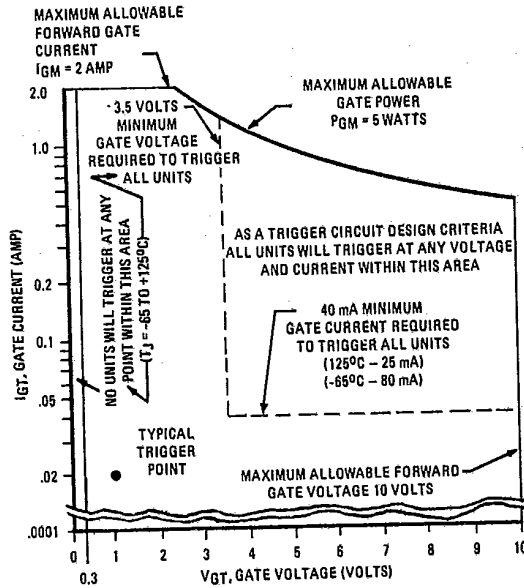


FIGURE 2 - GATE TRIGGER CHARACTERISTICS



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FIGURE 3 - ON-STATE CHARACTERISTICS

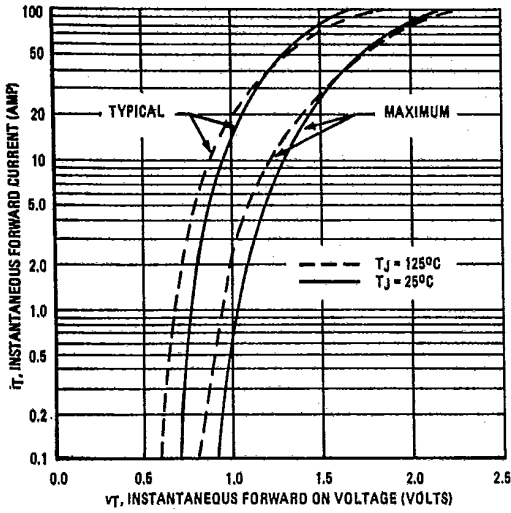


FIGURE 4 - MAXIMUM ALLOWABLE NON-RECURRENT SURGE CURRENT

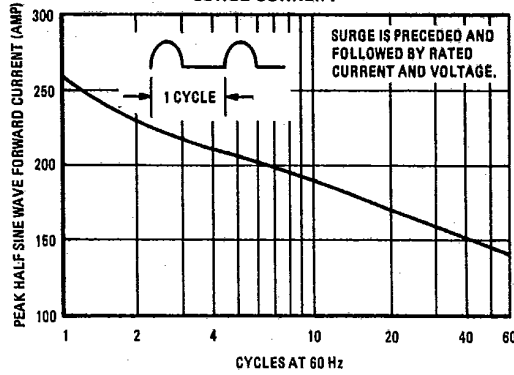


FIGURE 6 - EFFECT OF TEMPERATURE ON TYPICAL GATE CURRENT

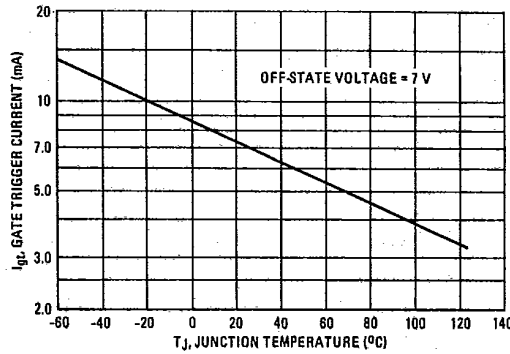


FIGURE 5 - EFFECT OF TEMPERATURE ON TYPICAL HOLDING CURRENT

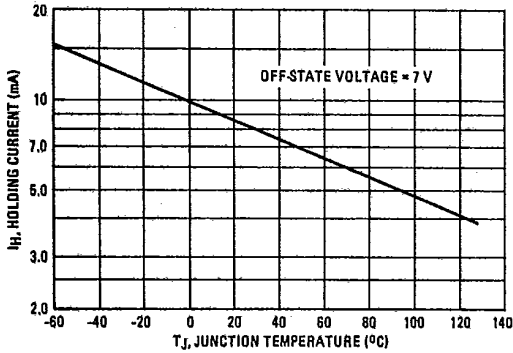


FIGURE 8 - MAXIMUM TRANSIENT THERMAL RESISTANCE JUNCTION TO CASE

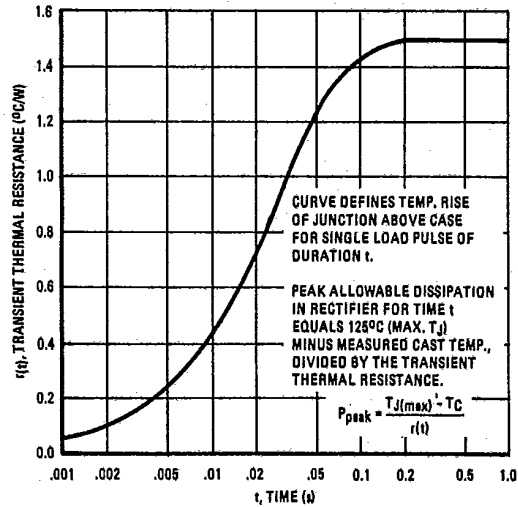
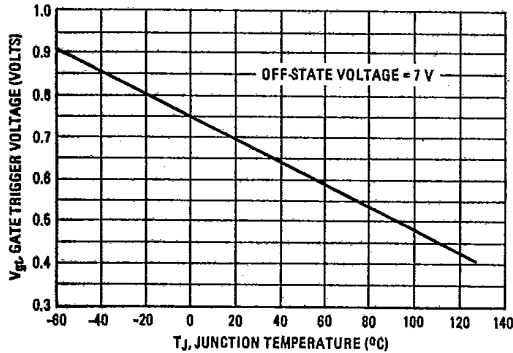


FIGURE 7 - EFFECT OF TEMPERATURE ON TYPICAL GATE VOLTAGE



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