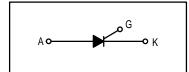
Silicon Controlled Rectifiers

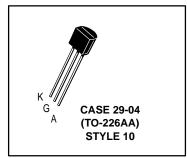
... designed and tested for repetitive peak operation required for CD ignition, fuel ignitors, flash circuits, motor controls and low-power switching applications.

- 150 Amperes for 2 µs Safe Area
- High dv/dt
- · Very Low Forward "On" Voltage at High Current
- Low-Cost TO-226AA (TO-92)

MCR22-2 thru MCR22-8

SCRs 1.5 AMPERES RMS 50 thru 600 VOLTS





MAXIMUM RATINGS ($T_J = 25^{\circ}C$ unless otherwise noted.)

Rating	Symbol	Value	Unit	
Peak Repetitive Forward and Reverse Blocking Voltage (RGK = IK, T _J = 25 to 125°C) MCR22-2 MCR22-3 MCR22-4 MCR22-6 MCR22-8	V _{DRM} , V _{RRM}	50 100 200 400 600	Volts	
On-State Current RMS (All Conduction Angles)	I _{T(RMS)}	1.5	Amps	
Peak Non-repetitive Surge Current, T _A = 25°C (1/2 Cycle, Sine Wave, 60 Hz)	ITSM	15	Amps	
Circuit Fusing Considerations (t = 8.3 ms)	l ² t	0.9	A ² s	
Peak Gate Power, T _A = 25°C	PGM	0.5	Watt	
Average Gate Power, T _A = 25°C	P _{G(AV)}	0.1	Watt	
Peak Forward Gate Current, T _A = 25°C (300 μs, 120 PPS)	^I FGM	0.2	Amp	
Peak Reverse Gate Voltage	VRGM	5	Volts	
Operating Junction Temperature Range @ Rated V _{RRM} and V _{DRM}	TJ	-40 to +125	°C	
Storage Temperature Range	T _{stg}	-40 to +150	°C	
Lead Solder Temperature (Lead Length ≥ 1/16" from case, 10 s Max)	_	+230	°C	

^{1.} V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.



MCR22-2 thru MCR22-8

THERMAL CHARACTERISTICS

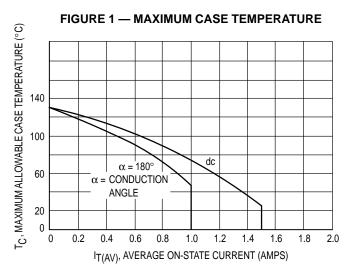
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{ heta JC}$	50	°C/W
Thermal Resistance, Junction to Ambient	$R_{ heta JA}$	160	°C/W

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ unless otherwise noted. $R_{GK} = 1000$ Ohms.)

Characteristic		Symbol	Min	Тур	Max	Unit
Peak Forward or Reverse Blocking Current (V _{AK} = Rated V _{DRM} or V _{RRM})	T _C = 25°C T _C = 125°C	IDRM, IRRM	=	_	10 200	μΑ μΑ
Forward "On" Voltage (I _{TM} = 1 A Peak)		Vтм	_	1.2	1.7	Volts
Gate Trigger Current (Continuous dc) ⁽¹⁾ (Anode Voltage = 6 Vdc, R _L = 100 Ohms)	$T_C = 25^{\circ}C$ $T_C = -40^{\circ}C$	lGT	_ _	30 —	200 500	μΑ
Gate Trigger Voltage (Continuous dc) (Anode Voltage = 7 Vdc, R _L = 100 Ohms) (Anode Voltage = Rated V _{DRM} , R _L = 100 Ohms)	$T_C = 25^{\circ}C$ $T_C = -40^{\circ}C$ $T_C = 125^{\circ}C$	V _{GT} V _{GD}	— — 0.1	_ _ _	0.8 1.2 —	Volts
Holding Current (Anode Voltage = 12 Vdc)	$T_C = 25^{\circ}C$ $T_C = -40^{\circ}C$	Ιн	_ _	2 —	5 10	mA
Forward Voltage Application Rate (T _C = 125°C)		dv/dt	_	25	_	V/µs

^{1.} $R_{\mbox{GK}}$ Current Not Included in Measurement.

CURRENT DERATING



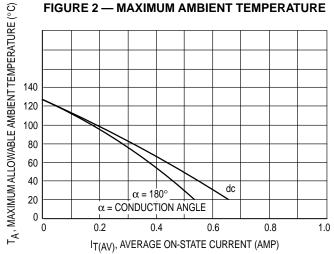


FIGURE 3 — TYPICAL FORWARD VOLTAGE

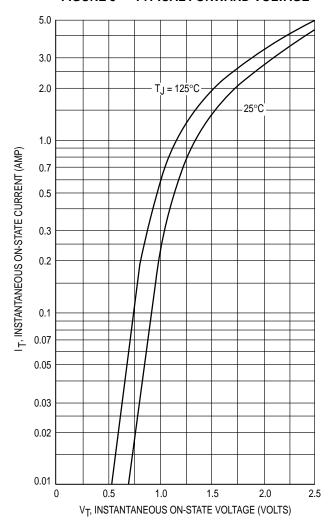
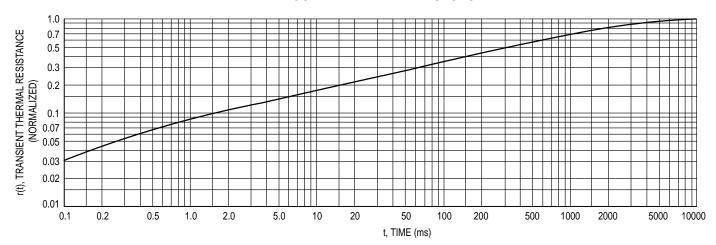


FIGURE 4 — THERMAL RESPONSE



TYPICAL CHARACTERISTICS

FIGURE 5 — GATE TRIGGER VOLTAGE

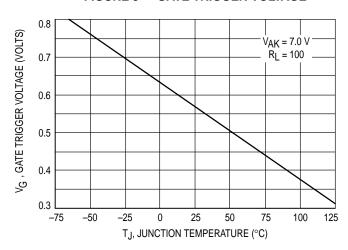


FIGURE 6 — TYPICAL GATE TRIGGER CURRENT

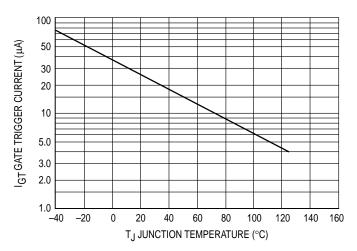


FIGURE 7 — HOLDING CURRENT

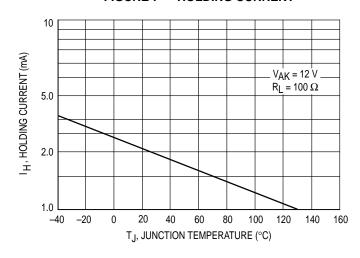
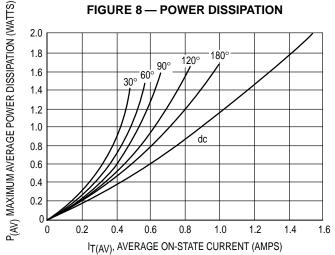
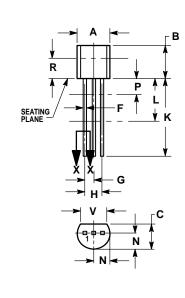


FIGURE 8 — POWER DISSIPATION



PACKAGE DIMENSIONS



STYLE 10: PIN 1. CATHODE 2. GATE 3. ANODE



- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
 4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION DO AND J APPLY BETWEEN L AND K MINIMUM. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		INCHES MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.175	0.205	4.45	5.20	
В	0.170	0.210	4.32	5.33	
С	0.125	0.165	3.18	4.19	
D	0.016	0.022	0.41	0.55	
F	0.016	0.019	0.41	0.48	
G	0.045	0.055	1.15	1.39	
Н	0.095	0.105	2.42	2.66	
J	0.015	0.020	0.39	0.50	
K	0.500		12.70	_	
L	0.250		6.35		
N	0.080	0.105	2.04	2.66	
Р		0.100		2.54	
R	0.115		2.93		
٧	0 135		3 43		

CASE 29-04 (TO-226AA)

MCR22-2 thru MCR22-8

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MCR22-2/D