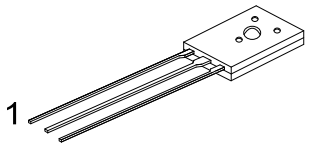
MCR106

SCR

REVERSE BLOCKING TRIODE THYRISTORS



TO-126

■ DESCRIPTION

PNPN devices designed for high volume consumer applications such as temperature, light and speed control; process and remote control, and warning systems where reliability of operation is important.

■ FEATURES

* Glass-passivated surface for reliability and uniformity
* Power rated at economical prices
* Practical level triggering and holding characteristics
* Flat, rugged, thermopad construction for low thermal resistance, high heat dissipation and durability

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MCR106L-6-T60-K	MCR106G-6-T60-K	TO-126	K	A	G	Bulk
MCR106L-8-T60-K	MCR106G-8-T60-K	TO-126	K	A	G	Bulk

Note: Pin assignment: G: Gate K: Cathode A: Anode

MCR106L-6-T60-K (1) Packing Type (2) Package Type (3) Lead Free	(1) K: Bulk (2) T60: TO-126 (3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATINGS (T_J=25℃, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Peak Repetitive Forward and Reverse Blocking Voltage (Note 1) (T_J=110℃, R_{GK}=1kΩ)	MCR106-6	V_{DRM}, V_{RRM}	400	V
	MCR106-8		600	V
RMS Forward Current (All conduction Angles)		$I_{T(RMS)}$	4	A
Average Forward Current (T_C=93℃ or T_A=30℃)		$I_{T(AV)}$	2.55	A
Peak Non-repetitive Surge Current (1/2 Cycle, 60Hz, T_J=-40 ~ +110℃)		I_{TSM}	25	A
Circuit Fusing Considerations (t=8.3 ms)		I^2t	2.6	A^2S
Peak Gate Power		P_{GM}	0.5	W
Average Gate Power		$P_{G(AV)}$	0.1	W
Peak Forward Gate Current		I_{GM}	0.2	A
Peak Reversed Gate Voltage		V_{RGM}	6	V
Mounting Torque (Note 2)			6	In. lb.
Junction Temperature		T_J	+110	℃
Storage Temperature		T_{STG}	-40 ~ +150	℃

Note 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 of the devices are exceeded.

2. Torque rating applies with use of compression washer (B52200-F006 or equivalent). Mounting torque in excess of 6 in. lb. does not appreciably lower case-to-sink thermal resistance. Anode lead and heatsink contact pad are common. For soldering purposes (either terminal connection or device mounting), soldering temperatures shall not exceed +200℃. For optimum results, an activated flux (oxide removing) is recommended.
3. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	75	℃/W
Junction to Case	θ_{JC}	3	℃/W

■ ELECTRICAL CHARACTERISTICS (T_C=25℃ and R_{GK}=1000 Ω, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak Forward or Reverse Blocking Current (V_{AK}=Rated V_{DRM} or V_{RRM})	I_{DRM},I_{RRM}	T_J=25℃			10	μA
		T_J=100℃			200	μA
Forward “On” Voltage (I_{TM}=4A peak)	V_{TM}				2	V
Gate Trigger Current (continuous DC) (Note)	I_{GT}	V_{AK}=7V, R_L=100Ω			200	μA
		V_{AK}=7V, R_L=100Ω, T_C=-40℃			500	
Gate Trigger Voltage (continuous DC)	V_{GT}	V_{AK}=7V, R_L=100Ω, T_C=25℃			1	V
Gate Non-Trigger Voltage	V_{GD}	V_{AK}=Rated V_{DRM}, R_L=100Ω, T_J=110℃	0.2			V
Holding Current	I_H	V_{AK}=7V, T_C=25 ℃			5	mA
Forward Voltage Application Rate	dv/dt	T_J=110℃		10		V/μs

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

■ TYPICAL CHARACTERISTICS