



MCR106-6/MCR106-8

SCR

■ GENERAL DESCRIPTION

Silicon Controlled Rectifiers Reverse Blocking Triode Thyristors

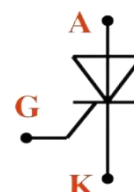
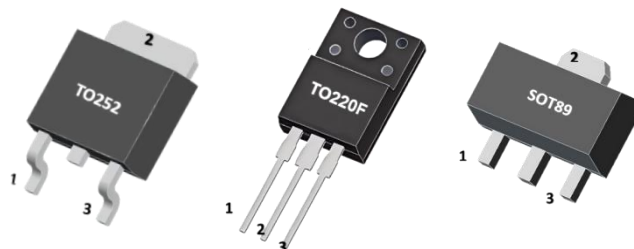
*PNPN devices designed for high volume consumer applications such as temperature, light and speed control; process and remote control, and warning systems where reliability of operation is important;

*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 HeatDissipation and Durability.

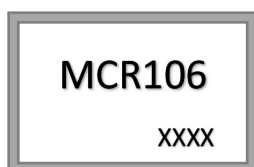


Pin1:K (Cathode)

Pin2:A (Anode)

Pin3:G (Gate)

■ MARKING



MCR106~MCR108=DeVice Code

XXXX=Date Code

■ ABSOLUTE MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

SYMBOL	PARAMETER		VALUE	UNIT
VDRM/VRRM	Peak repetitive forward and reverse blocking voltage (Note1) (TJ=110°C, RGK=1KΩ)	MCR106-6	400	V
		MCR106-8	600	
IT(RMS)	RMS forward current (All conduction angles)		4	A
ITSM	Peak on-state surge current (1/2Cycle, 60Hz, TJ=-40-to+110°C)		25	A
IGM	Peak forward gate current		0.2	A
VRGM	Peak reversed gate voltage		6	V
I ² t	Circuit fusing considerations	t=8.3ms	2.6	A ² S
PG(AV)	Average gate Power	Tj=125°C	0.1	W
PGM	Peak gate Power		0.5	W
TJ	Junction Temperature		+110	°C
TSTG	Storage Temperature		-40 to +150	°C

Notes: 1. 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.

2. Repetitive Rating: Pulse width limited by maximum junction temperature.



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■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT89	R θ JA	170	°C/W
	TO-252/TO-220F		62.5	°C/W
Junction to Case	TO-220F	R θ JC	3.31	°C/W
	TO-252		2.6	°C/W
	SOT89		120	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

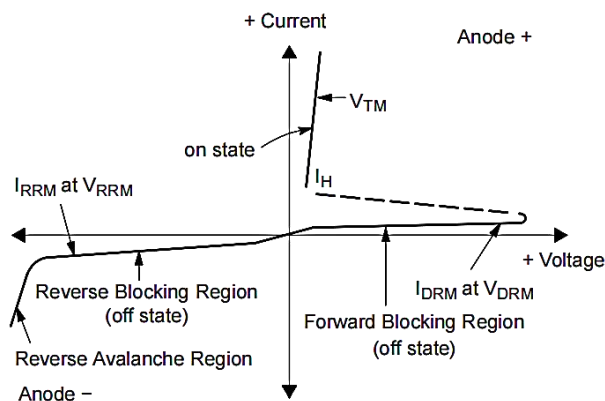
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Peak Forward or Reverse Blocking Current (V _{AK} =Rated V _{DRM} or V _{RRM})	I _{DRM} , I _{RRM}	T _J =25°C			10	uA
		T _J =100°C			200	uA
Forward "On" Voltage (I _{TM} =4A peak)	V _{TM}				2	V
Gate Trigger Current (continuous DC) (Note)	I _{GT}	V _{AK} =7V, R _L =100Ω			200	uA
		V _{AK} =7V, R _L =100Ω, T _C =-40°C			500	uA
Gate Trigger Voltage (continuous DC)	V _{GT}	V _{AK} =7V, R _L =100Ω, T _C =25°C			1	V
Gate Non-Trigger Voltage	V _{GD}	V _{AK} =Rated V _{DRM} , R _L =100Ω, T _J =110°C	0.2			V
Holding Current	I _H	V _{AK} =7V, T _C =25°C			5	mA
Forward Voltage Application Rate	dv/dt	T _J =110°C		10		V/uS

Note: RGK current is not included in measurement.

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Voltage Current Characteristic of SCR

Symbol	Parameter
V _{DRM}	Peak Repetitive Off State Forward Voltage
I _{DRM}	Peak Forward Blocking Current
V _{RRM}	Peak Repetitive Off State Reverse Voltage
I _{RRM}	Peak Reverse Blocking Current
V _{TM}	Peak On State Voltage
I _H	Holding Current





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■ TYPICAL CHARACTERISTICS

CURRENT DERATING

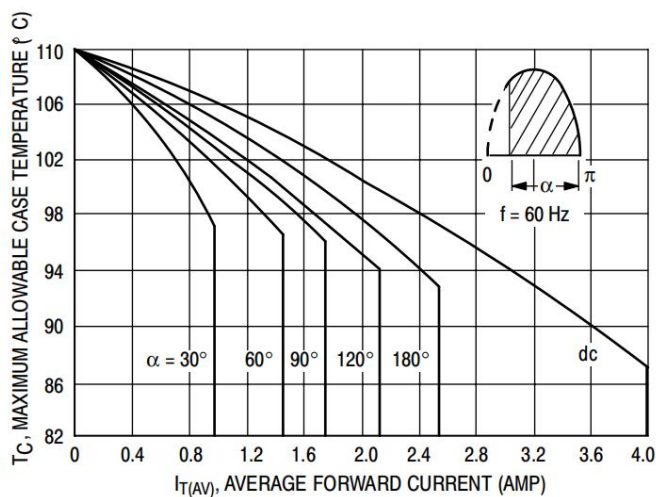


Figure 1. Maximum Case Temperature

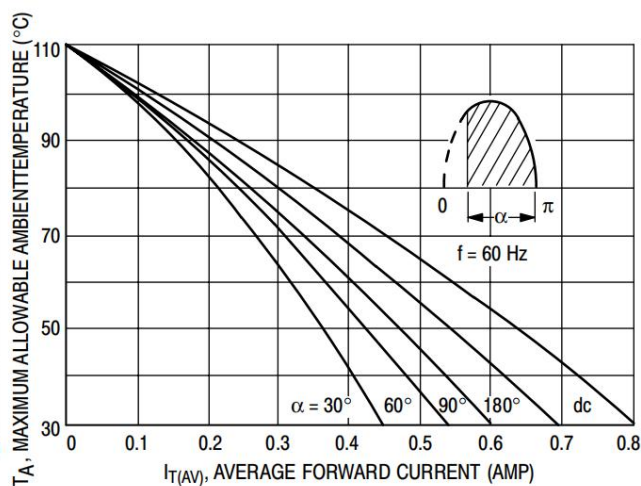


Figure 2. Maximum Ambient Temperature

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Technical drawing of a mechanical part, showing a side view and a top view.

Side View:

- Top surface: 7.0° angle.
- Top right corner: $R0.15$ fillet.
- Bottom width: 6.6 ± 0.1 .
- Right side height: 3 ± 0.1 .

Top View:

- Overall width: 5.80 .
- Overall height: 5.85 .
- Left side height: 3.70 .
- Right side height: 1.20 .
- Bottom width: 4.57 .
- Bottom right corner: 2.00 .

[illegible]

Inner box

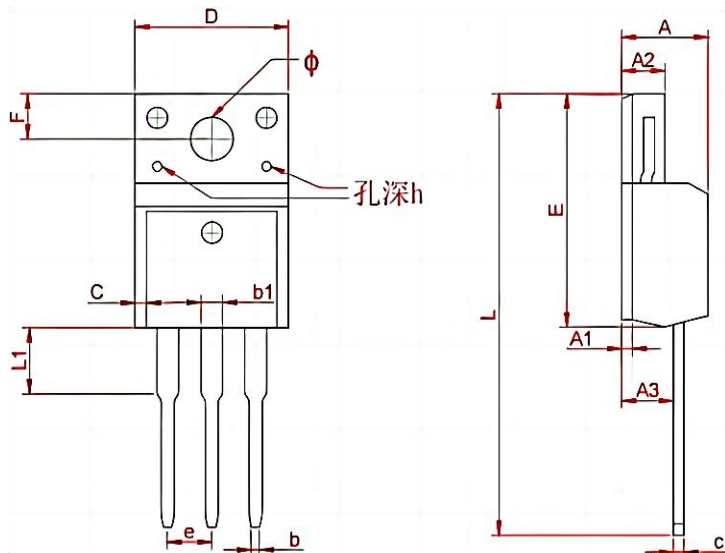
Rev.-1.1



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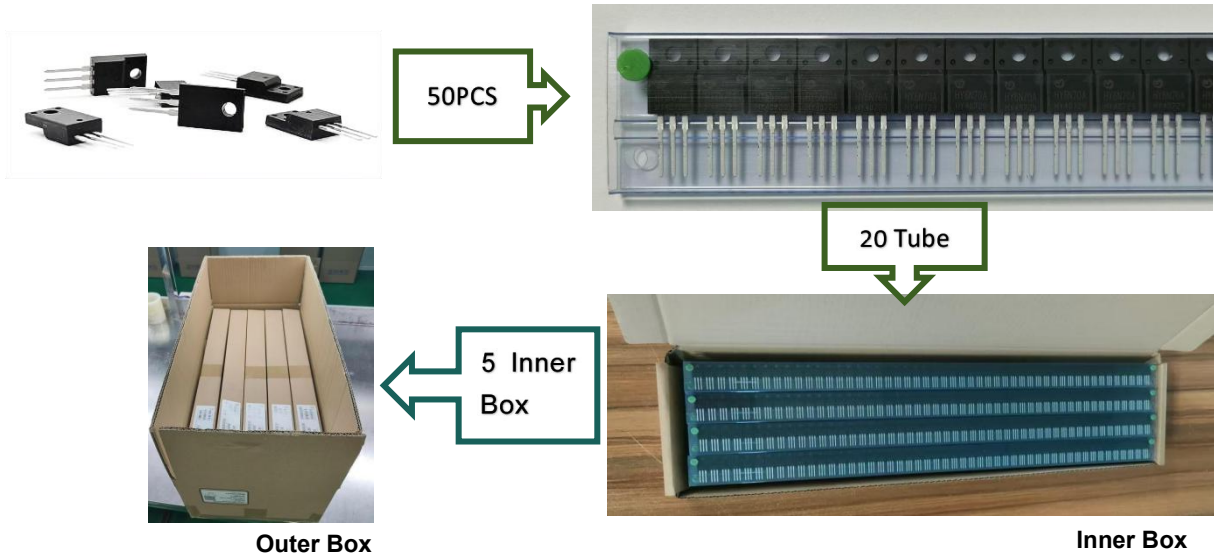
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TO-220F PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max	Min	Max
A	4.300	4.750	0.169	0.185
A1	1.830 REF		0.072 REF	
A2	2.300	2.850	0.090	0.112
A3	2.500	2.900	0.098	0.114
b	0.400	0.420	0.016	0.016
b1	1.220	1.280	0.048	0.050
C	0.690	0.720	0.027	0.028
c	0.490	0.510	0.019	0.020
D	9.960	10.200	0.392	0.400
E	15.000	15.950	0.588	0.625
e	2.574 TYP		0.101 TYP	
F	3.470 REF		0.136 REF	
y	3.200 REF		0.125 REF	
h	0.000	0.300	0.000	0.012
L	28.780	28.900	1.128	1.133
L1	2.990	3.100	0.117	0.122

TO - 220F PACKING INFORMATION



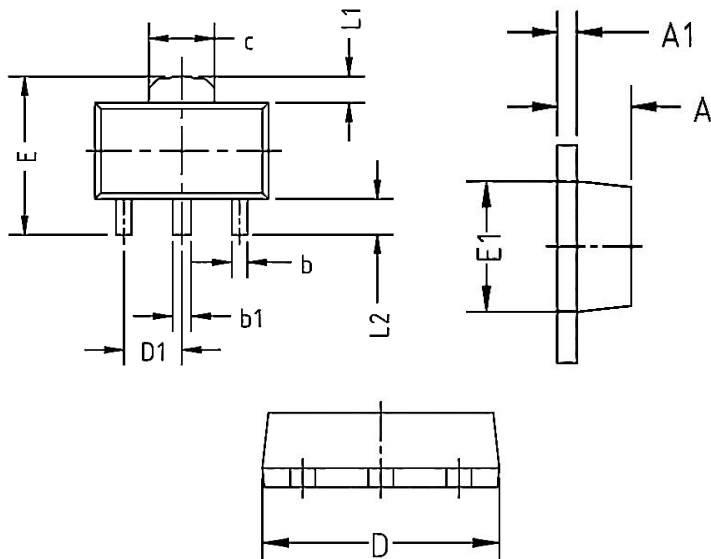
Package version	Tube dimensions LxWxH (mm)	Per Tube (pcs)	Tube per box	Inner box dimensions LxWxH (mm)	PCS/ Inner box	Outer box dimensions LxWxH(mm)	PCS/ Outer box
TO-220F	530*32*7	50	20	580*155*50	1000	602*277*188	5000



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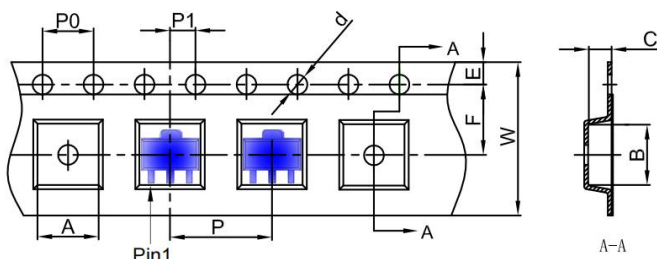
■ SOT - 89 PACKAGE OUTLINE DIMENSIONS



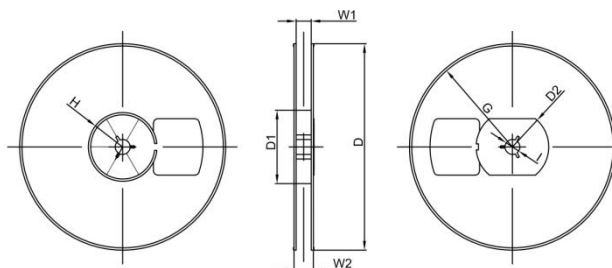
COMMON DIMENSION(MM)			
PKG	SOT-89		
Symbol	MIN	MON	MAX
A	1.450	1.500	1.550
A1	0.350	0.400	0.450
b	0.350	0.400	0.48
b1	0.430	0.480	0.550
C	1.500	1.550	1.650
D	4.450	4.550	4.700
D1	1.470	1.500	1.550
E	4.100	4.200	4.300
E1	2.500	2.550	2.650
L1	0.650	0.700	0.750
L2	0.900	0.950	1.000

■ SOT89 PACKAGING INFORMATION

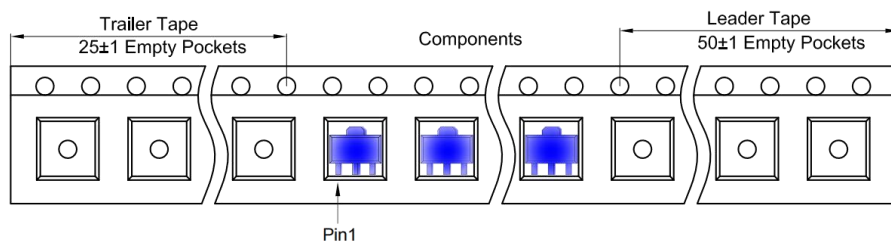
SOT-89 Embossed Carrier Tape



SOT-89 Reel



SOT-89 Tape Leader and Trailer



REEL	Reel Size
1000 pcs	7 inch

Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50