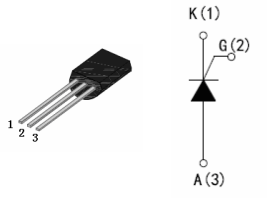
MCR100-8

1A 800V

DRAWING



General Description

- Package：TO-92
- MCR100-8 which use the specific design to achieve high voltage blocking capability, less-temp dependent , high reliability and stability performance, thus have high tolerance to external severe application environment such as EMC,Temp fluctuation etc are widely used in leakage protection application .

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Storage junction temperature range	Tstg	-40 to +150	℃
Operating junction temperature range	Tj	-40 to +110	℃
Repetitive Peak Off-state voltage Tj=25℃	V_{DRM}	800	V
Repetitive Peak Reverse voltage Tj=25℃	V_{RRM}	800	V
Non repetitive Surge Peak Off-state Voltage(Tj=25℃)	V_{DSM}	900	V
Non repetitive Peak Reverse Voltage(Tj=25℃)	V_{RSM}	900	V
RMS on-state current(half sine cycle) Tc=50℃	IT(RMS)	1	A
Average on-state current(half since cycle) Tc=50℃	IT(AV)	0.6	A
Non repetitive surge peak on-state current f=50Hz t=10ms	I_{TSM}	12	A
(half sine cycle,Tj=25℃) f=60Hz t=8.3ms		12.8	A
I^2t Value for fusing tp=10ms	I^2t	0.72	A^2s
Peak gate current tp=20us,Tj=110℃	I_{GM}	0.3	A
Peak gate power tp=20us,Tj=110℃	P_{GM}	0.5	W
Average gate power dissipation Tj=110℃	$P_{G(AV)}$	0.1	W

Electrical Characteristics(Tj=25℃ unless otherwise specified)

Symbol	Test Condition		MCR100-8			Unit
			Min	Typ	Max	
I_{GT}	V_D=6V,R_L=100Ω		10	-	140	uA
V_{GT}			-	0.6	0.8	V
V_{GD}	V_D=V_{DRM} R_L=3.3KΩ R_{GK}=1KΩ	Tj=110℃	0.2	-	-	V
I_L	I_G=1mA R_{GK}=1KΩ		-	-	5	mA
I_H	IT=50mA R_{GK}=1KΩ		-	-	3	mA
VTM	IT=2A, tp=380us	Tj=25℃	-	-	1.55	V
DV/DT	VD=60%VDRM RGK=1KΩ	Tj=110℃	50	100	-	V/us
IDRM	VD=VDRM RGK=1KΩ	Tj=25℃	-	-	5	uA
	VD=VDRM RGK=1KΩ	Tj=110℃	-	-	0.2	mA
IRRM	VR=VRRM RGK=1KΩ	Tj=25℃	-	-	5	uA
	VR=VRRM RGK=1KΩ	Tj=110℃	-	-	0.2	mA

I_{GT} Class

Item	A	B	C	D	E	F
I_{GT}(uA)	10~30	20~50	40~100	10~50	20~140	30~60

Thermal Resistances

Sysmbol	Parameter	Value	Unit
Rth(J-C)	Junction to case	70	℃/W
Rth(J-A)	Junction to Ambient	160	℃/W

Typical Characteristics

FIG.1: Maximum power dissipation versus average on-state current(half cycle)

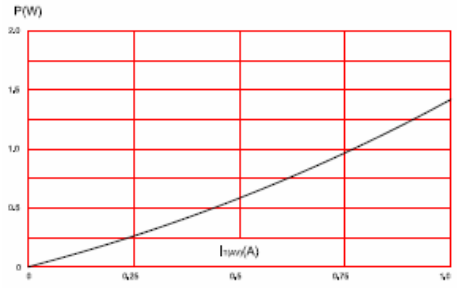


FIG.2: RMS on-state current versus case temperature(full cycle)

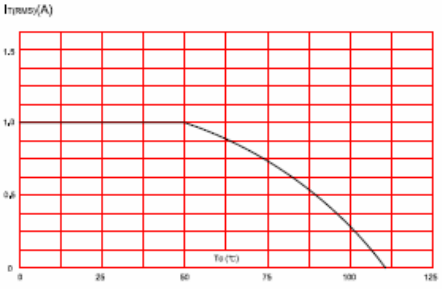


FIG.3:On-state characteristics (maximum values).

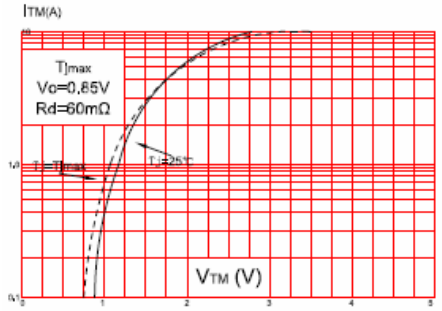


FIG.4:Surge peak on-state current versus number of cycles.

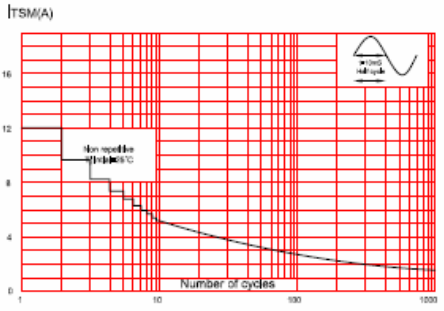


FIG.5:Non-repetitive surge peak on-state current for a sinusoidal pulse width tp<10ms,and corresponding value of I²t.

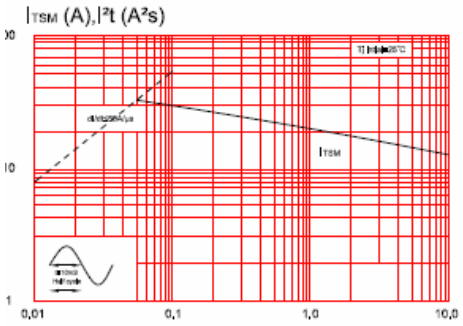
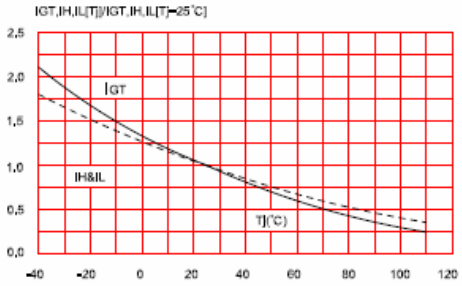
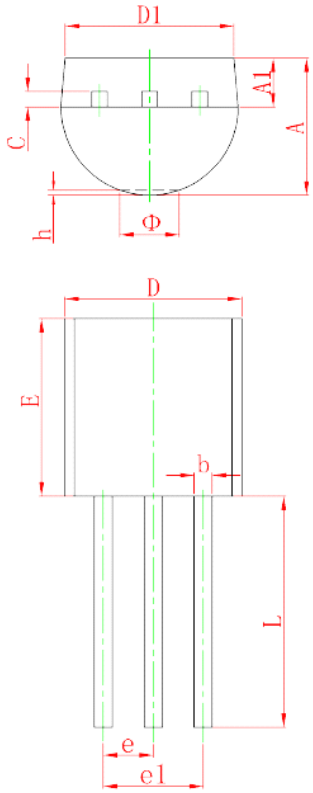


FIG.6:Relative variations of gate trigger current,holding current and latching current versus junction temperature(typical values)



Mechanical Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015