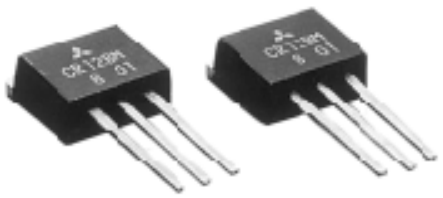
CR12BM

MEDIUM POWER USE

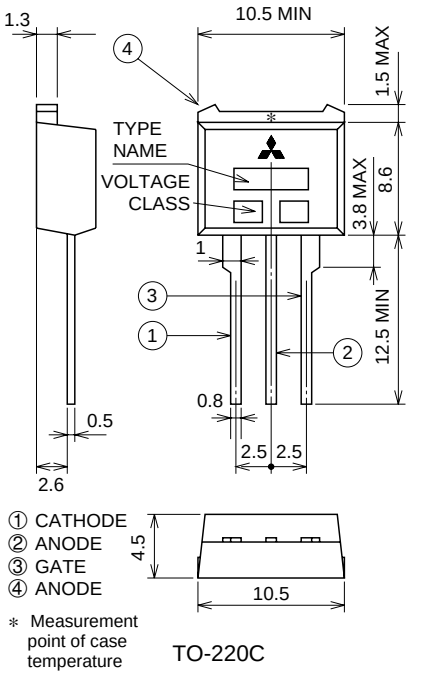
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

CR12BM



- $I_{T\,(AV)}$ 12A
- V_{DRM} 400V/600V
- I_{GT} 30mA

OUTLINE DRAWING Dimensions in mm



APPLICATION

Automatic strobe flasher

MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		8	12	
V_{RRM}	Repetitive peak reverse voltage	400	600	V
V_{RSM}	Non-repetitive peak reverse voltage	500	720	V
$V_{R\,(DC)}$	DC reverse voltage	320	480	V
V_{DRM}	Repetitive peak off-state voltage	400	600	V
$V_{D\,(DC)}$	DC off-state voltage	320	480	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T\,(RMS)}$	RMS on-state current		18.8	A
$I_{T\,(AV)}$	Average on-state current	Commercial frequency, sine half wave, 180° conduction, T_C=91°C	12.0	A
I_{TSM}	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	360	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	544	A^2s
P_{GM}	Peak gate power dissipation		5	W
$P_{G\,(AV)}$	Average gate power dissipation		0.5	W
V_{FGM}	Peak gate forward voltage		6	V
V_{RGM}	Peak gate reverse voltage		10	V
I_{FGM}	Peak gate forward current		2	A
T_j	Junction temperature		–40 ~ +125	°C
T_{stg}	Storage temperature		–40 ~ +125	°C
—	Weight	Typical value	1.5	g

MITSUBISHI ELECTRIC

CR12BM

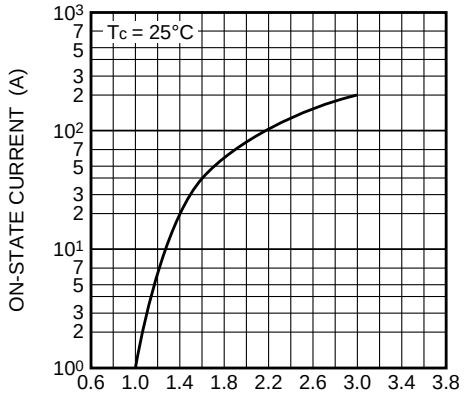
MEDIUM POWER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

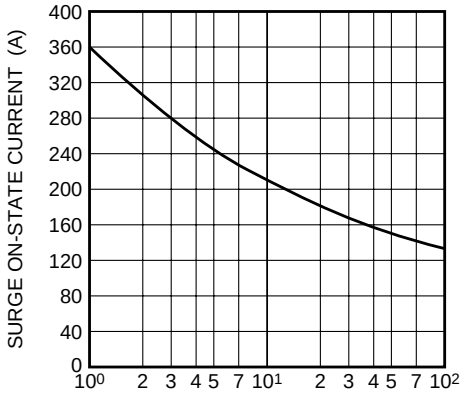
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{RRM}	Repetitive peak reverse current	T_j=125°C, V_{DRM} applied	—	—	2.0	mA
I_{DRM}	Repetitive peak off-state current	T_j=125°C, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	T_C=25°C, I_{TM}=40A	—	—	1.6	V
V_{GT}	Gate trigger voltage	T_j=25°C, V_D=6V, I_T=1A	—	—	1.5	V
V_{GD}	Gate non-trigger voltage	T_j=125°C, V_D=1/2V_{DRM}	0.2	—	—	V
I_{GT}	Gate trigger current	T_j=25°C, V_D=6V, I_T=1A	—	—	30	mA
I_H	Holding current	T_j=25°C, V_D=12V	—	15	—	mA
$R_{th\ (j-c)}$	Thermal resistance	Junction to case	—	—	1.2	°C/W
$R_{th\ (j-a)}$		Junction to ambient	—	—	70	

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



RATED SURGE ON-STATE CURRENT



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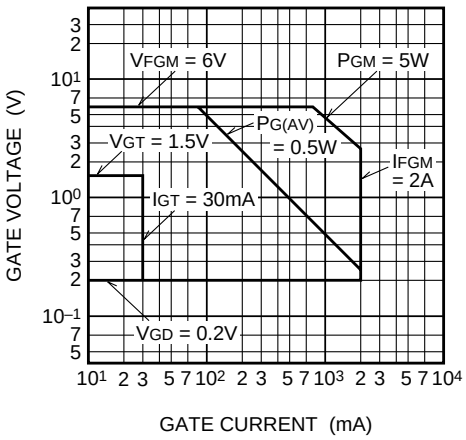
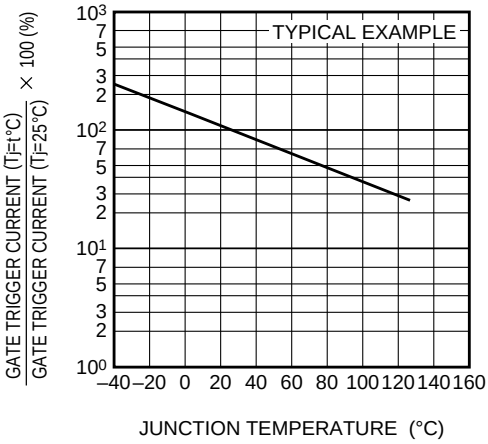
MEDIUM POWER USE

NON-INSULATED TYPE, GLASS PASSIVATION TYPE

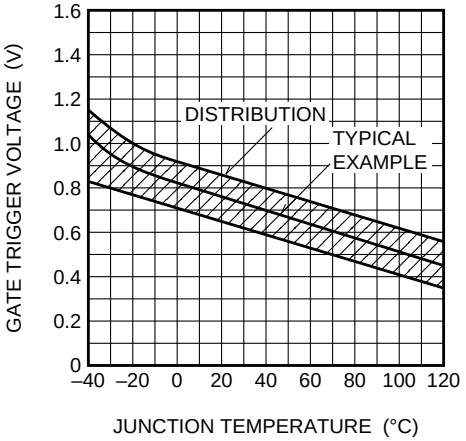
GATE CHARACTERISTICS



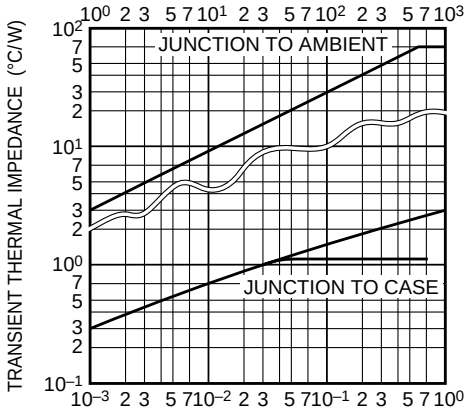
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



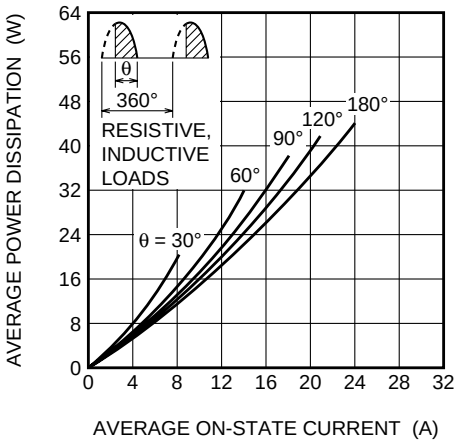
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



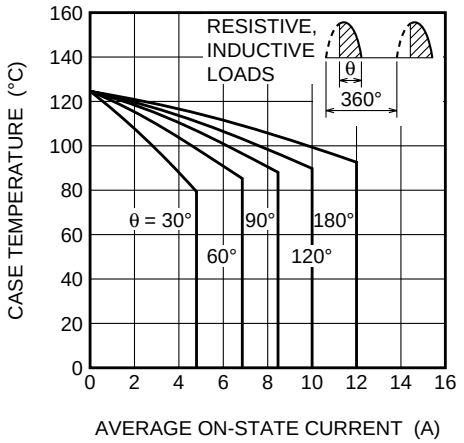
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



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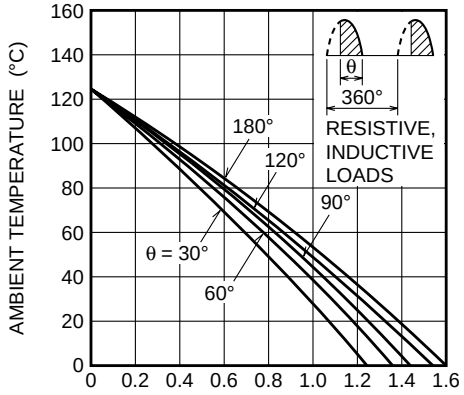
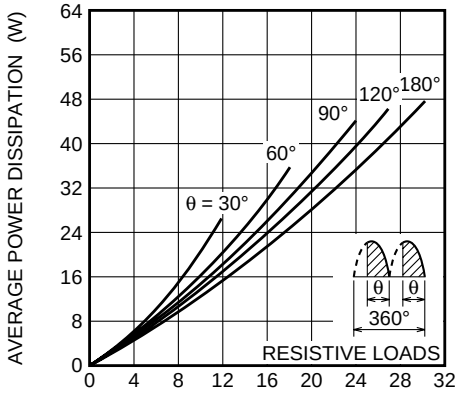
MEDIUM POWER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

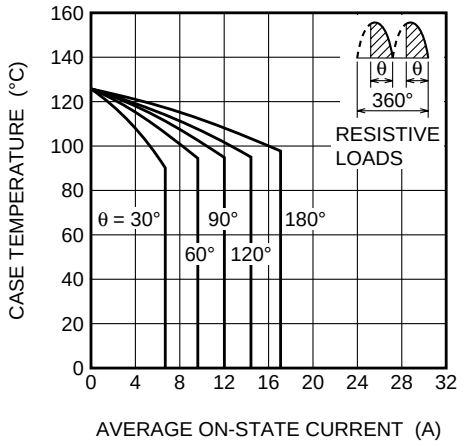
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



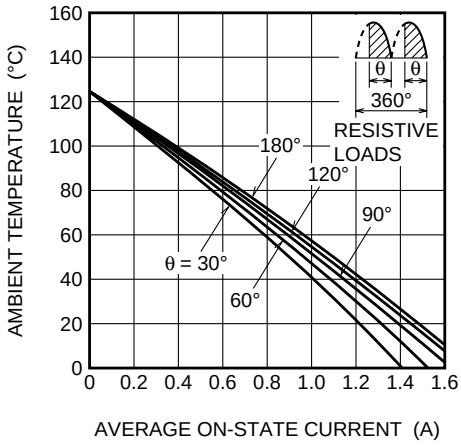
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE FULL WAVE)



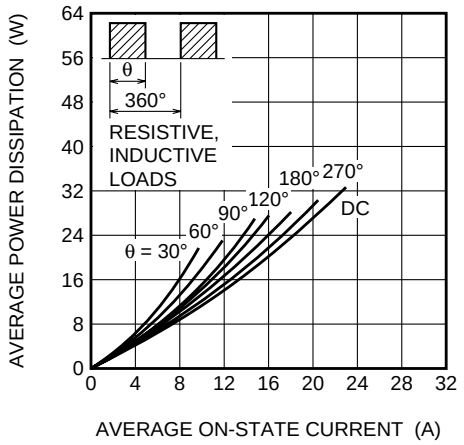
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



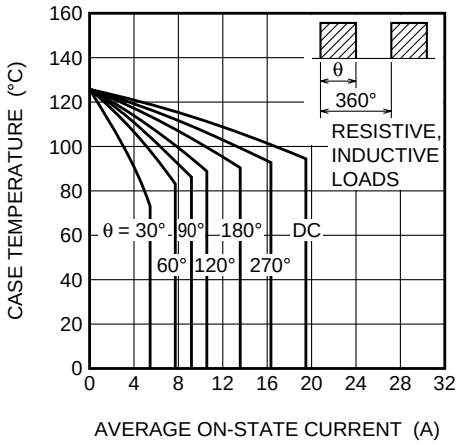
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



MAXIMUM AVERAGE POWER DISSIPATION (RECTANGULAR WAVE)



ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



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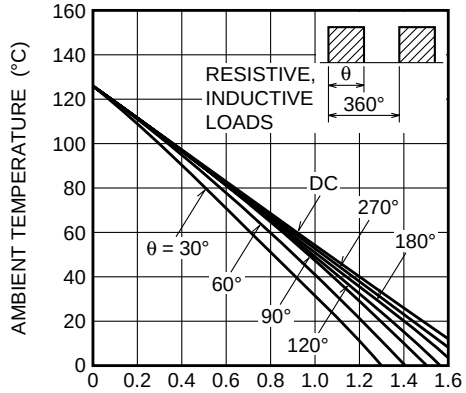
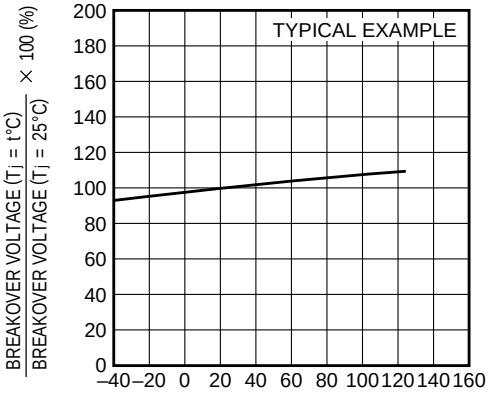
MEDIUM POWER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

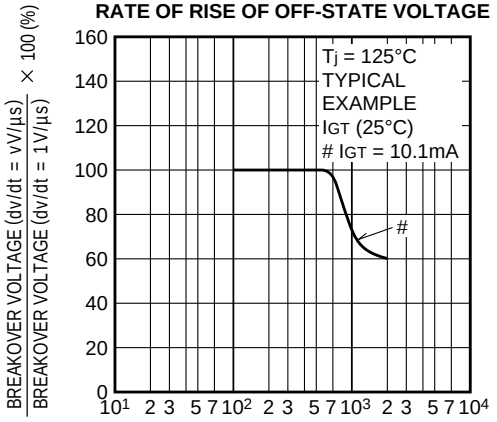
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



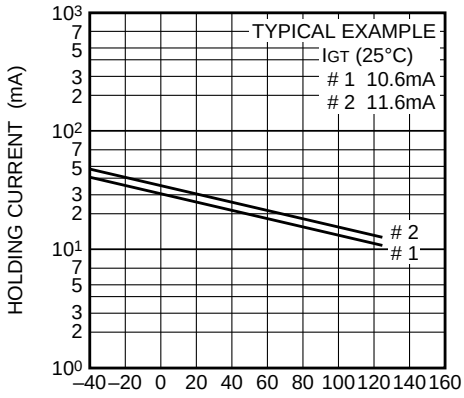
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



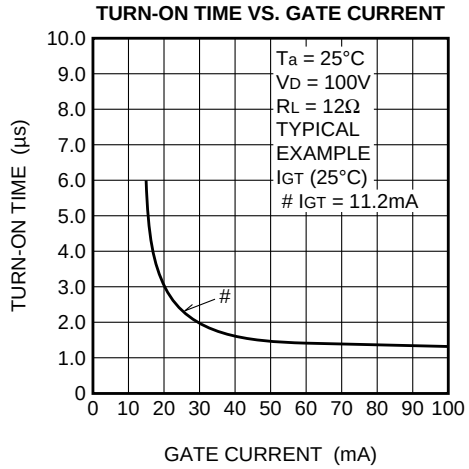
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



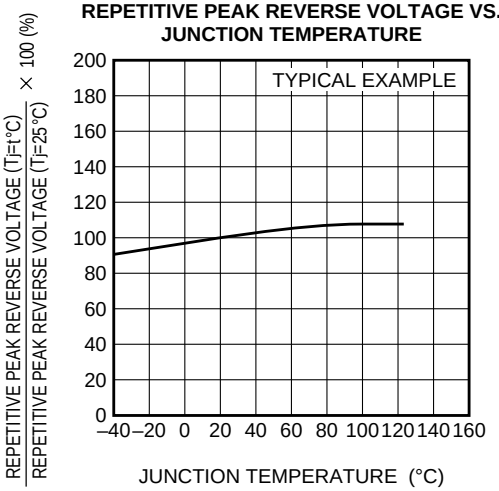
HOLDING CURRENT VS. JUNCTION TEMPERATURE



TURN-ON TIME VS. GATE CURRENT



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE



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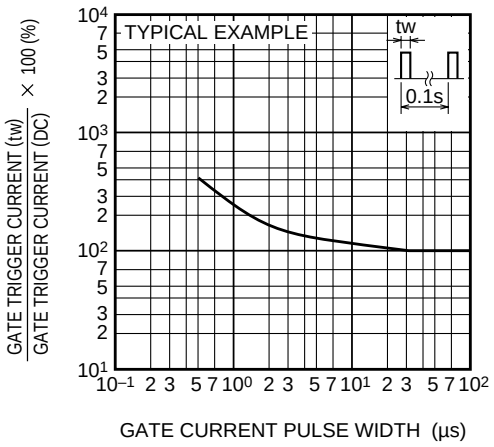
**GATE TRIGGER CURRENT VS.
GATE CURRENT PULSE WIDTH**



**MAXIMUM ALLOWABLE PEAK ON-STATE
CURRENT VS.
DISCHARGE CAPACITOR**