CR5AS

MEDIUM POWER USE

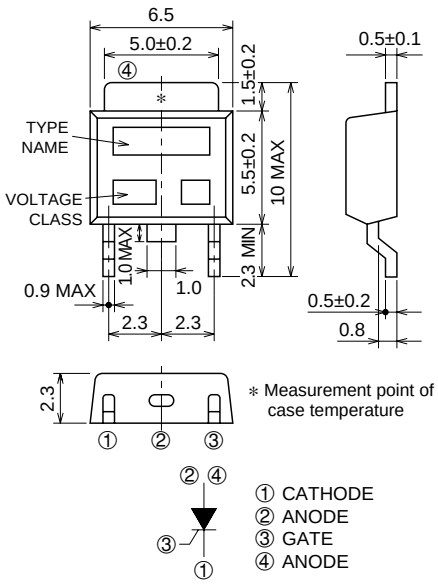
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

CR5AS

- $I_{T\ (AV)}$ 5A
- V_{DRM} 400V/600V
- I_{GT} 200μA

OUTLINE DRAWING

Dimensions in mm



MP-3

APPLICATION

Switching mode power supply, regulator for autocycle, such as TV. VCR. PRINTER, ignitors for autocycle, electric tools, other general purpose control applications, 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 *1	400	600	V
$V_{D\ (DC)}$	DC off-state voltage *1	320	480	V

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T\ (RMS)}$	RMS on-state current		7.8	A
$I_{T\ (AV)}$	Average on-state current	Commercial frequency, sine half wave, 180° conduction, T_C=88°C	5	A
I_{TSM}	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	90	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	33	A^2s
P_{GM}	Peak gate power dissipation		0.5	W
$P_{G\ (AV)}$	Average gate power dissipation		0.1	W
V_{FGM}	Peak gate forward voltage		6	V
V_{RGM}	Peak gate reverse voltage		6	V
I_{FGM}	Peak gate forward current		0.3	A
T_j	Junction temperature		–40 ~ +125	°C
T_{stg}	Storage temperature		–40 ~ +125	°C
—	Weight	Typical value	0.26	g

*1. With Gate-to-cathode resistance R_{GK}=220Ω

MITSUBISHI ELECTRIC

CR5AS

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_{RRM} applied, R_{GK}=220Ω	—	—	2.0	mA
I_{DRM}	Repetitive peak off-state current	T_j=125°C, V_{DRM} applied, R_{GK}=220Ω	—	—	2.0	mA
V_{TM}	On-state voltage	T_C=25°C, I_{TM}=15A, instantaneous value	—	—	1.8	V
V_{GT}	Gate trigger voltage	T_j=25°C, V_D=6V, I_T=0.1A	—	—	0.8	V
V_{GD}	Gate non-trigger voltage	T_j=125°C, V_D=1/2V_{DRM}, R_{GK}=220Ω	0.1	—	—	V
I_{GT}	Gate trigger current	T_j=25°C, V_D=6V, I_T=0.1A	1	—	200*3	μA
I_H	Holding current	T_j=25°C, V_D=12V, R_{GK}=220Ω	—	3.5	—	mA
$R_{th\ (j-c)}$	Thermal resistance	Junction to case *2	—	—	3.0	°C/W

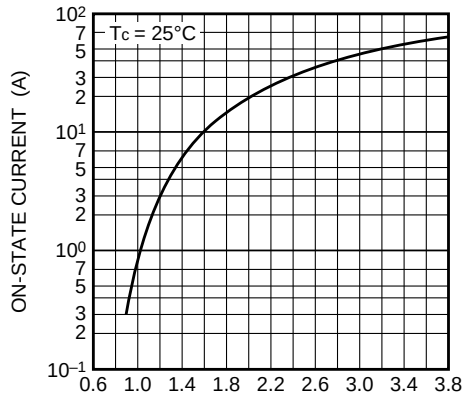
*2. The method point for case temperature is at anode tab.
*3. If special values of I_{GT} are required, choose at least two items from those listed in the table below. (Example: AB, BD)

Item	A	B	C	D
I_{GT} (μA)	1 ~ 30	20 ~ 50	40 ~ 100	80 ~ 200

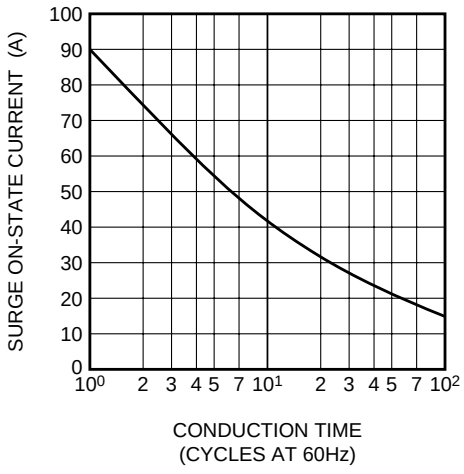
The above values do not include the current flowing through the 220Ω resistance between the gate and cathode.

PERFORMANCE CURVES

MAXIMUM ON-STATE CHARACTERISTICS



RATED SURGE ON-STATE CURRENT



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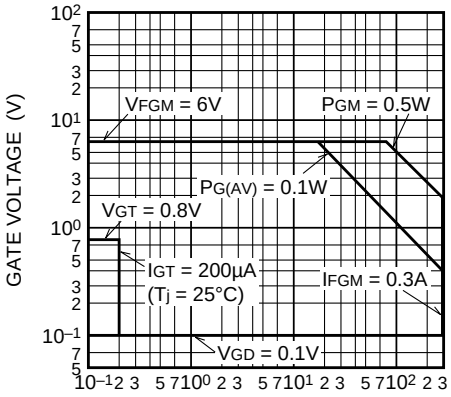
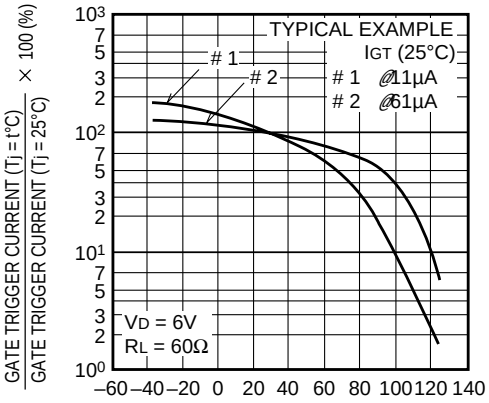
MEDIUM POWER USE

NON-INSULATED TYPE, GLASS PASSIVATION TYPE

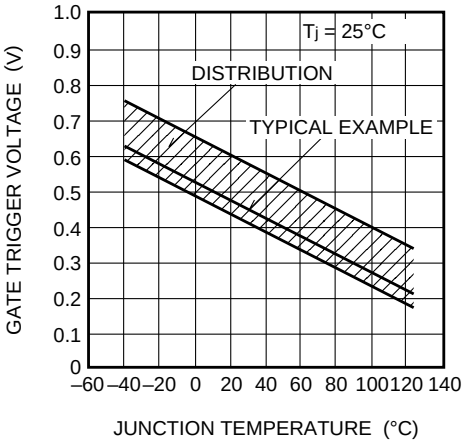
GATE CHARACTERISTICS



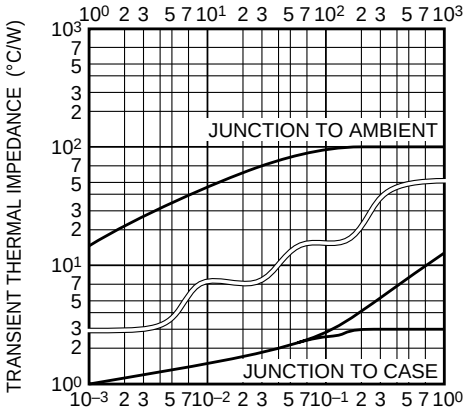
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



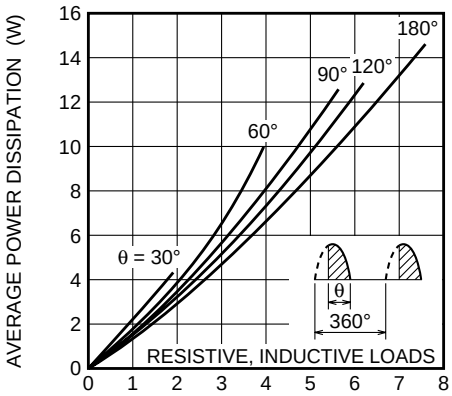
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



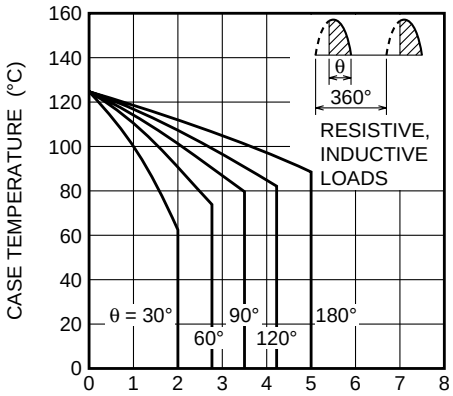
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



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



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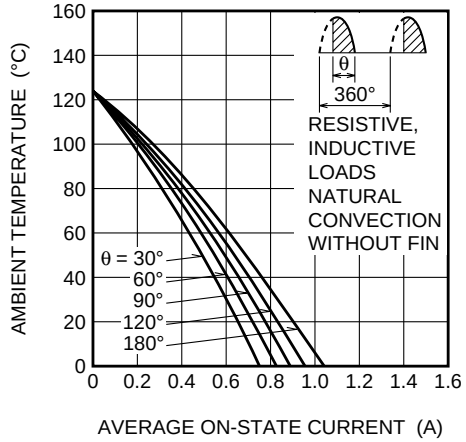
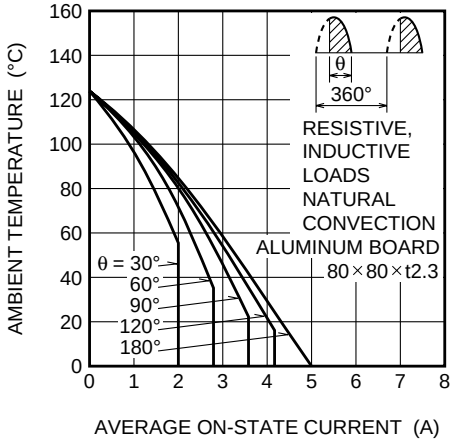
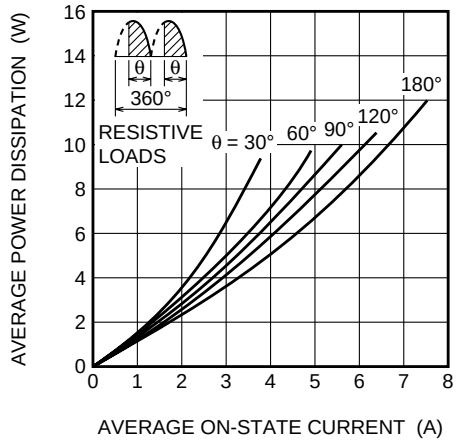
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



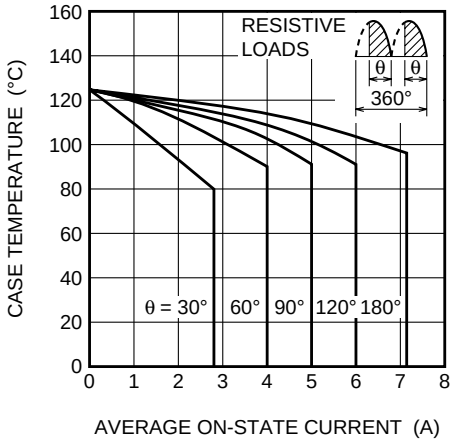
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



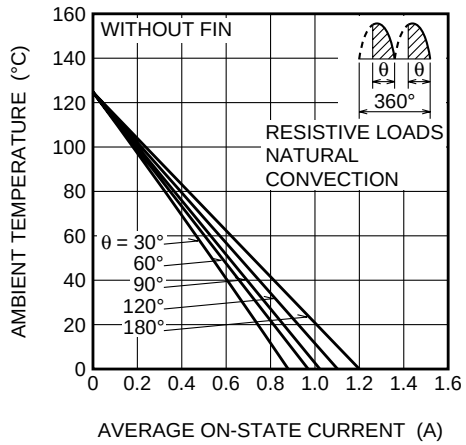
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE FULL WAVE)



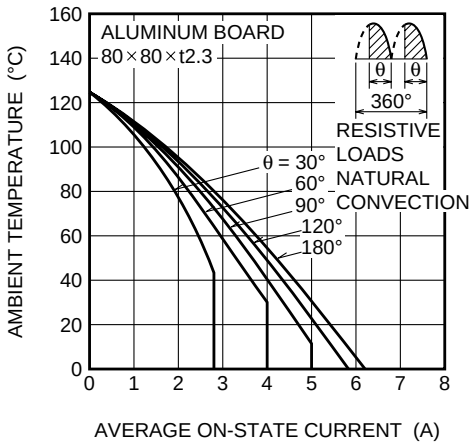
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



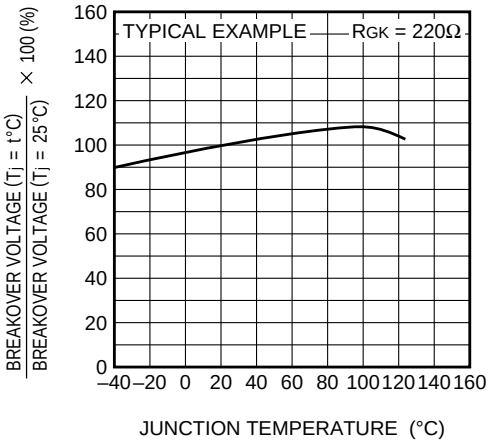
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



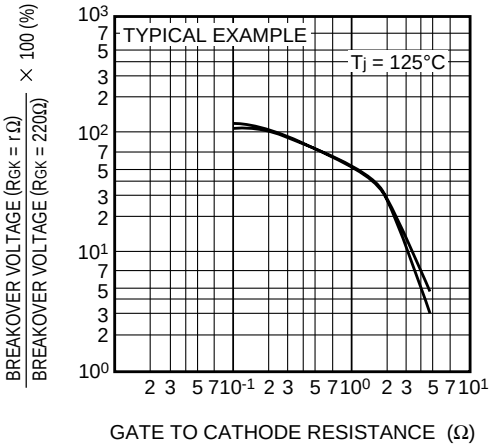
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



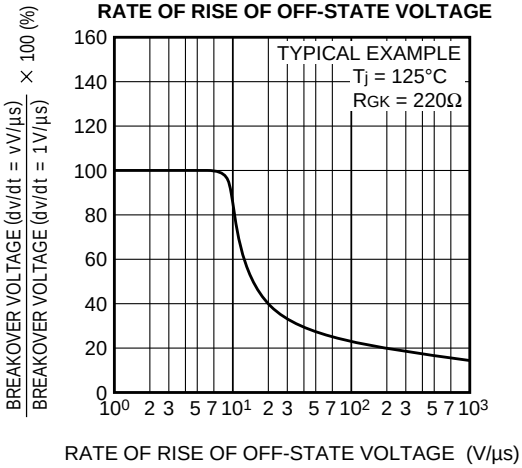
BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE



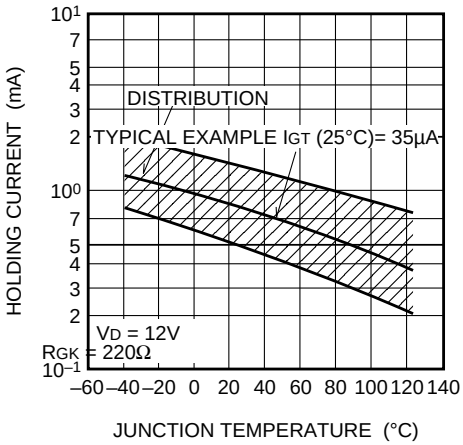
BREAKOVER VOLTAGE VS. GATE TO CATHODE RESISTANCE



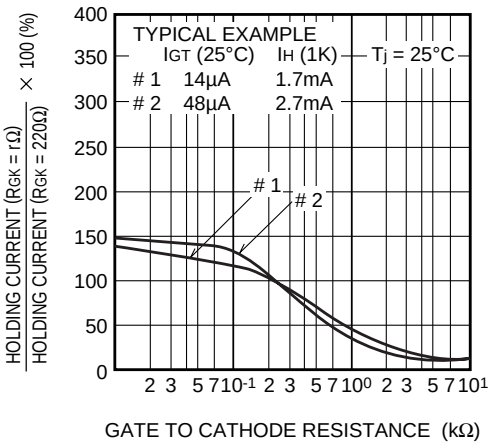
BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE



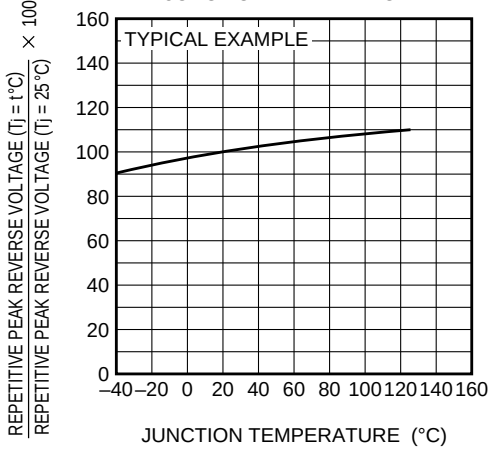
HOLDING CURRENT VS. JUNCTION TEMPERATURE



HOLDING CURRENT VS. GATE TO CATHODE RESISTANCE



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE



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