

# CR5AS

MEDIUM POWER USE  
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

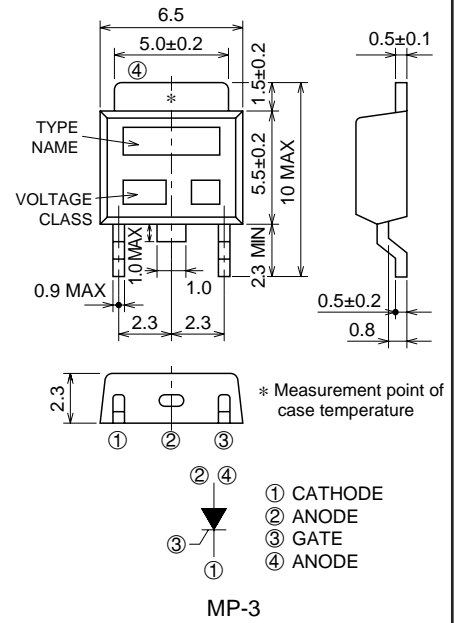
## CR5AS



- $I_T$  (AV) ..... 5A
- $V_{DRM}$  ..... 400V/600V
- $I_{GT}$  ..... 200 $\mu$ A

## OUTLINE DRAWING

Dimensions  
in mm



## APPLICATION

Switching mode power supply, regulator for autcycle, such as TV. VCR. PRINTER, ignitors for autcycle, 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, $T_c=88^\circ\text{C}$	5	A
$I_{TSM}$	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	90	A
$I^2_t$	$I^2_t$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	33	A <sup>2</sup> s
PGM	Peak gate power dissipation		0.5	W
PG (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  $R_{GK}=220\Omega$

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## ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IRRM	Repetitive peak reverse current	$T_j=125^{\circ}\text{C}$ , $V_{RRM}$ applied, $R_{GK}=220\Omega$	—	—	2.0	mA
IDRM	Repetitive peak off-state current	$T_j=125^{\circ}\text{C}$ , $V_{DRM}$ applied, $R_{GK}=220\Omega$	—	—	2.0	mA
V <sub>TM</sub>	On-state voltage	$T_c=25^{\circ}\text{C}$ , $I_{TM}=15\text{A}$ , instantaneous value	—	—	1.8	V
V <sub>GT</sub>	Gate trigger voltage	$T_j=25^{\circ}\text{C}$ , $V_D=6\text{V}$ , $I_T=0.1\text{A}$	—	—	0.8	V
V <sub>GD</sub>	Gate non-trigger voltage	$T_j=125^{\circ}\text{C}$ , $V_D=1/2V_{DRM}$ , $R_{GK}=220\Omega$	0.1	—	—	V
I <sub>GT</sub>	Gate trigger current	$T_j=25^{\circ}\text{C}$ , $V_D=6\text{V}$ , $I_T=0.1\text{A}$	1	—	200*3	μA
I <sub>H</sub>	Holding current	$T_j=25^{\circ}\text{C}$ , $V_D=12\text{V}$ , $R_{GK}=220\Omega$	—	3.5	—	mA
R <sub>th</sub> (j-c)	Thermal resistance	Junction to case *2	—	—	3.0	°C/W

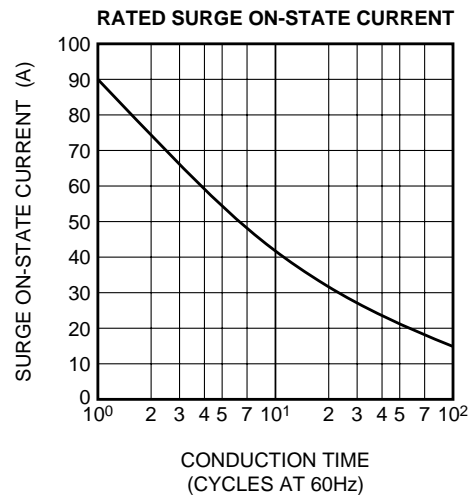
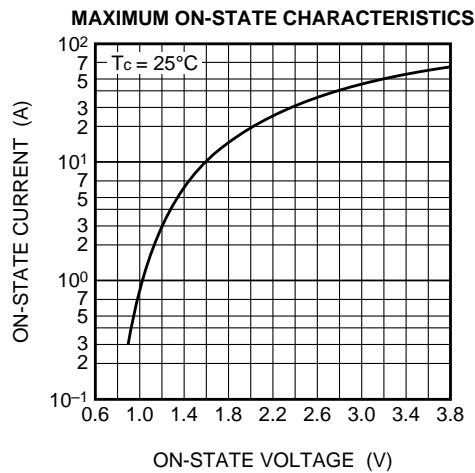
\*2. The method point for case temperature is at anode tab.

\*3. If special values of I<sub>GT</sub> are required, choose at least two items from those listed in the table below. (Example: AB, BD)

Item	A	B	C	D
I <sub>GT</sub> (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.

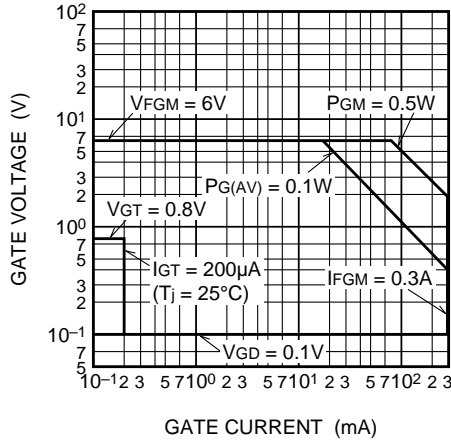
## PERFORMANCE CURVES



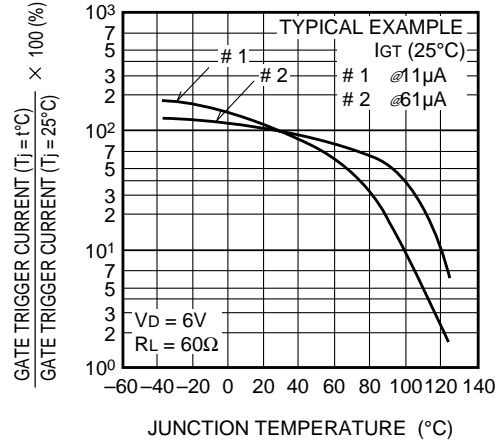
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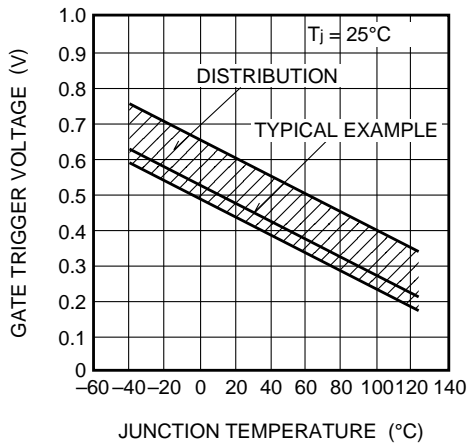
**GATE CHARACTERISTICS**



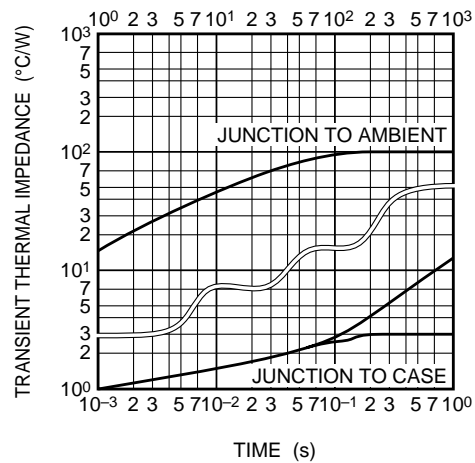
**GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE**



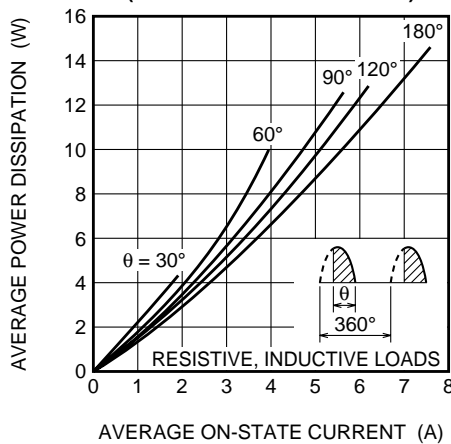
**GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE**



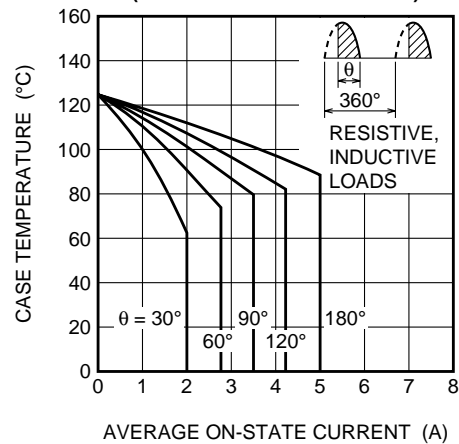
**MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS**



**MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)**



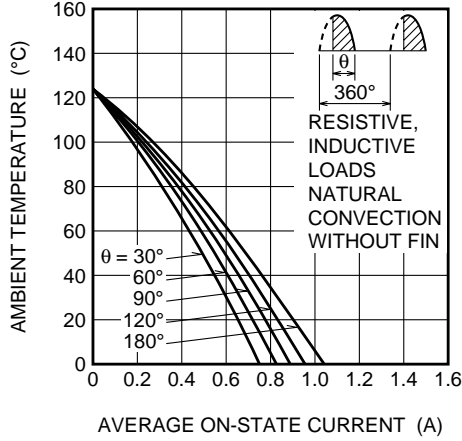
**ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)**



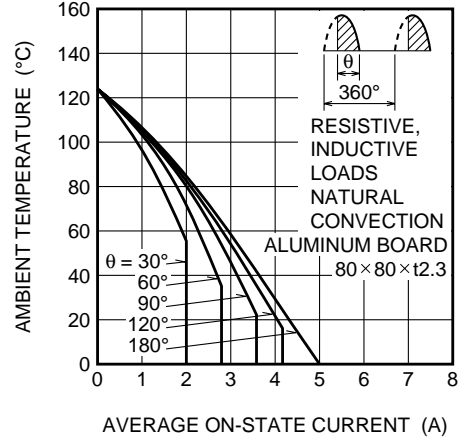
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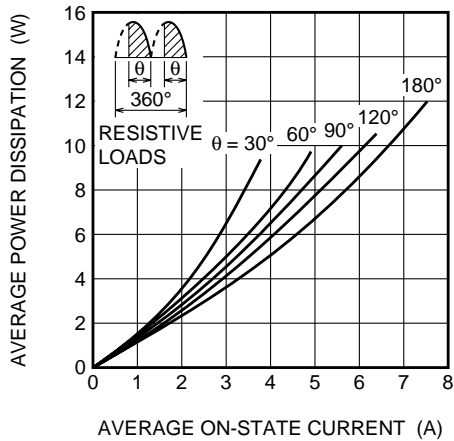
ALLOWABLE AMBIENT TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(SINGLE-PHASE HALF WAVE)



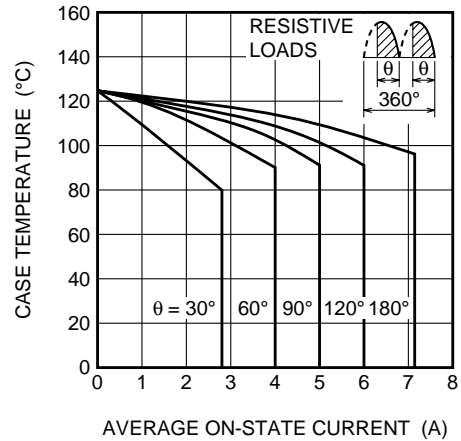
ALLOWABLE AMBIENT TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(SINGLE-PHASE HALF WAVE)



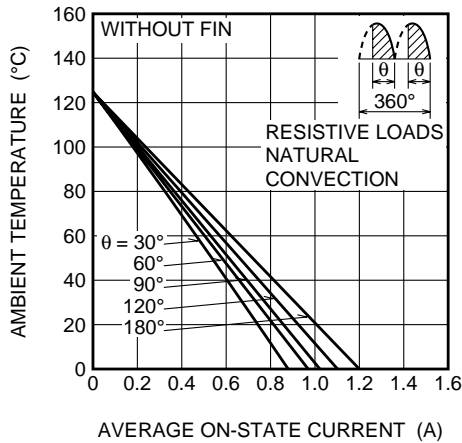
MAXIMUM AVERAGE POWER DISSIPATION  
(SINGLE-PHASE FULL WAVE)



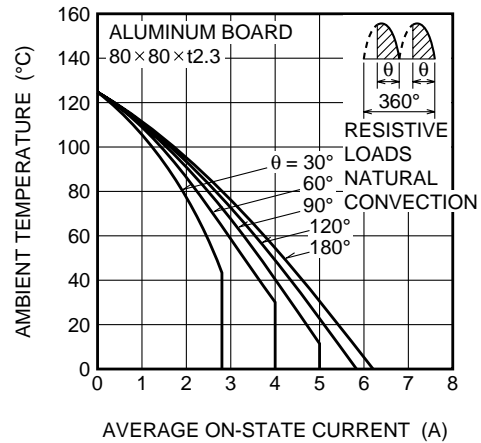
ALLOWABLE CASE TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(SINGLE-PHASE FULL WAVE)



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

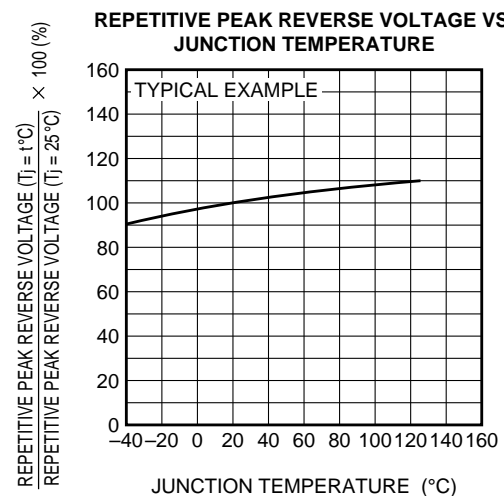
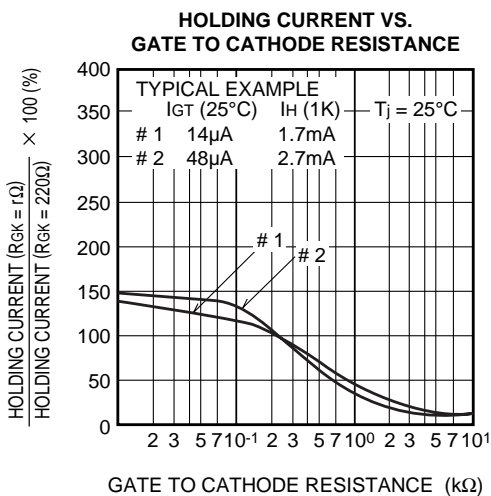
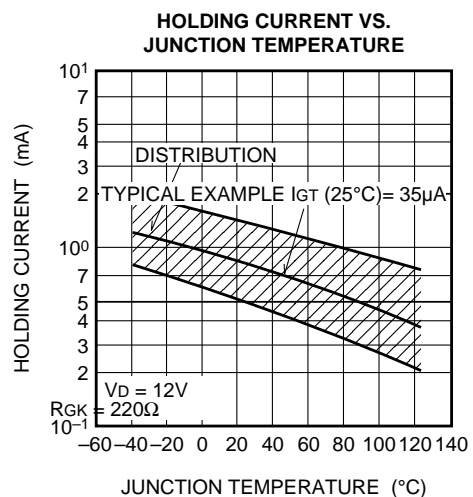
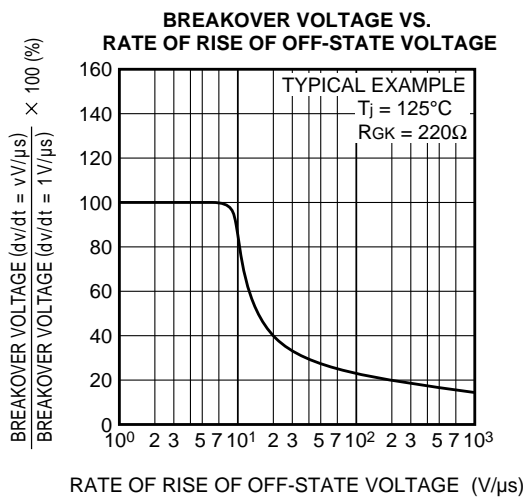
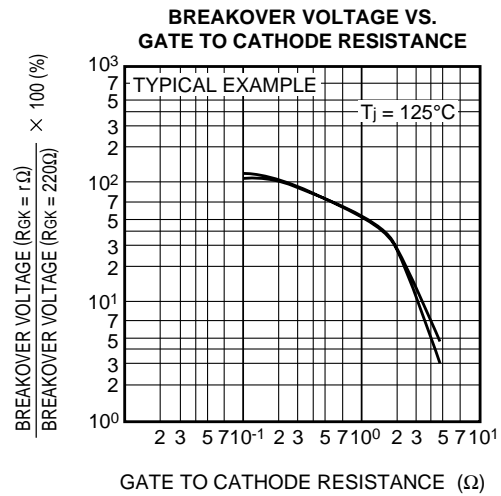
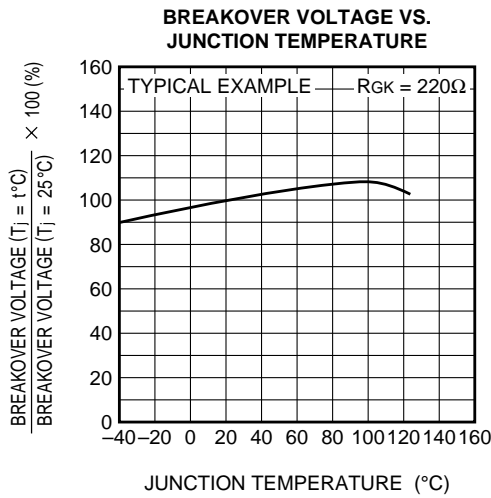


ALLOWABLE AMBIENT TEMPERATURE VS.  
AVERAGE ON-STATE CURRENT  
(SINGLE-PHASE FULL WAVE)



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