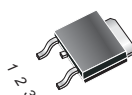


Description

Glass passivated, sensitive gate thyristors in a plastic envelope, intended for use in general purpose switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.

Symbol		Simplified outline	
			
		TO-252	

Pin	Description
1	Cathode
2	anode
3	gate
TAB	anode

Applications:

- ◆ Motor control
- ◆ Industrial and domestic lighting
- ◆ Heating
- ◆ Static switching

Features

- ◆ Blocking voltage to 600 V
- ◆ On-state RMS current to 5 A
- ◆ Ultra low gate trigger current

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages CR5AS-8 CR5AS-12	400 600	V
$I_T (RMS)$	RMS on-state current (full sine wave)	5	A
I_{TSM}	Non-repetitive peak on-state current (full cycle, T_j initial=25°C)	90	A

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$R_{th j-c}$	Thermal resistance Junction to mounting base		-	-	3.0	°C/W
$R_{th j-a}$	Thermal resistance Junction to ambient	In free air	-	70	-	K/W

Limiting values in accordance with the Maximum system(IEC 134)

SYMBOL	PARAMETER	CONDITIONS	MIN	Value	UNIT
V_{RRM}	Repetitive peak reverse voltage	CR5AS-8 CR5AS-12	-	400 600	V
$I_{T(AV)}$	Average on-state current	Commercial frequency,sine half wave, 180° conduction.Tc=88℃	-	5	A
$I_{T(RMS)}$	RMS on-state current		-	7.8	A
I_{FGM}	Peak gate forward current		-	0.3	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz,surge on-state current	-	33	A ² s
I_{TSM}	Surge on-state current	60Hz sine half wave 1 full cycle,peak value,non-repetitive	-	90	A
$P_{G(AV)}$	Average gate power dissipation		-	0.1	W
T_j	Junction temperature		-40	125	℃
T_{stg}	Storage temperature		-40	125	℃
P_{GM}	Peak gate power dissipation		-	0.5	W

$T_j=25^{\circ}\text{C}$ unless otherwise stated

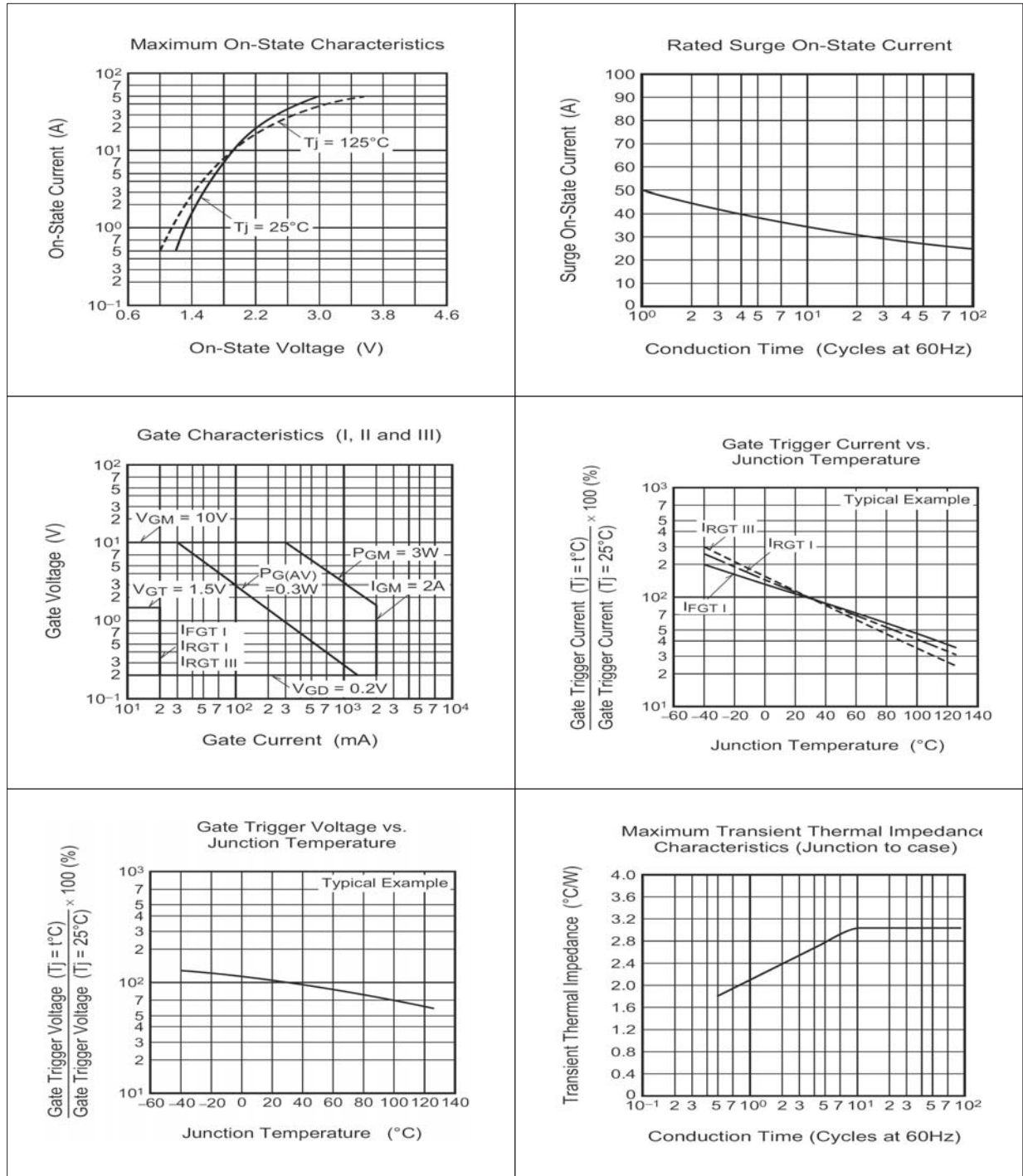
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Static characteristics						
I_{GT}	Gate trigger current	$T_j=25^{\circ}\text{C}, V_D=6\text{V}, I_T=0.1\text{A}$	1	-	200	μA
V_{GT}	Gate trigger voltage	$T_j=25^{\circ}\text{C}, V_D=6\text{V}, I_T=0.1\text{A}$	-	-	0.8	V
V_{GD}	Gate non-trigger voltage	$T_j=125^{\circ}\text{C}, V_D=1/2V_{DRM}, R_{GK}=220\Omega$	0.1	-	-	V
V_{TM}	On-state voltage	$T_c=25^{\circ}\text{C}, I_{TM}=15\text{A}$, instantaneous value	-	-	1.8	V
I_H	Holding current	$T_j=25^{\circ}\text{C}, V_D=12\text{V}, R_{GK}=220\Omega$	-	3.5	-	mA
I_{DRM}	Repetitive peak off-state current	$T_j=125^{\circ}\text{C}, V_{DRM}$ applied, $R_{GK}=220\Omega$	-	-	2.0	mA
I_{RRM}	Repetitive peak reverse current	$T_j=125^{\circ}\text{C}, V_{RRM}$ applied	-	-	2.0	mA

Dynamic Characteristics

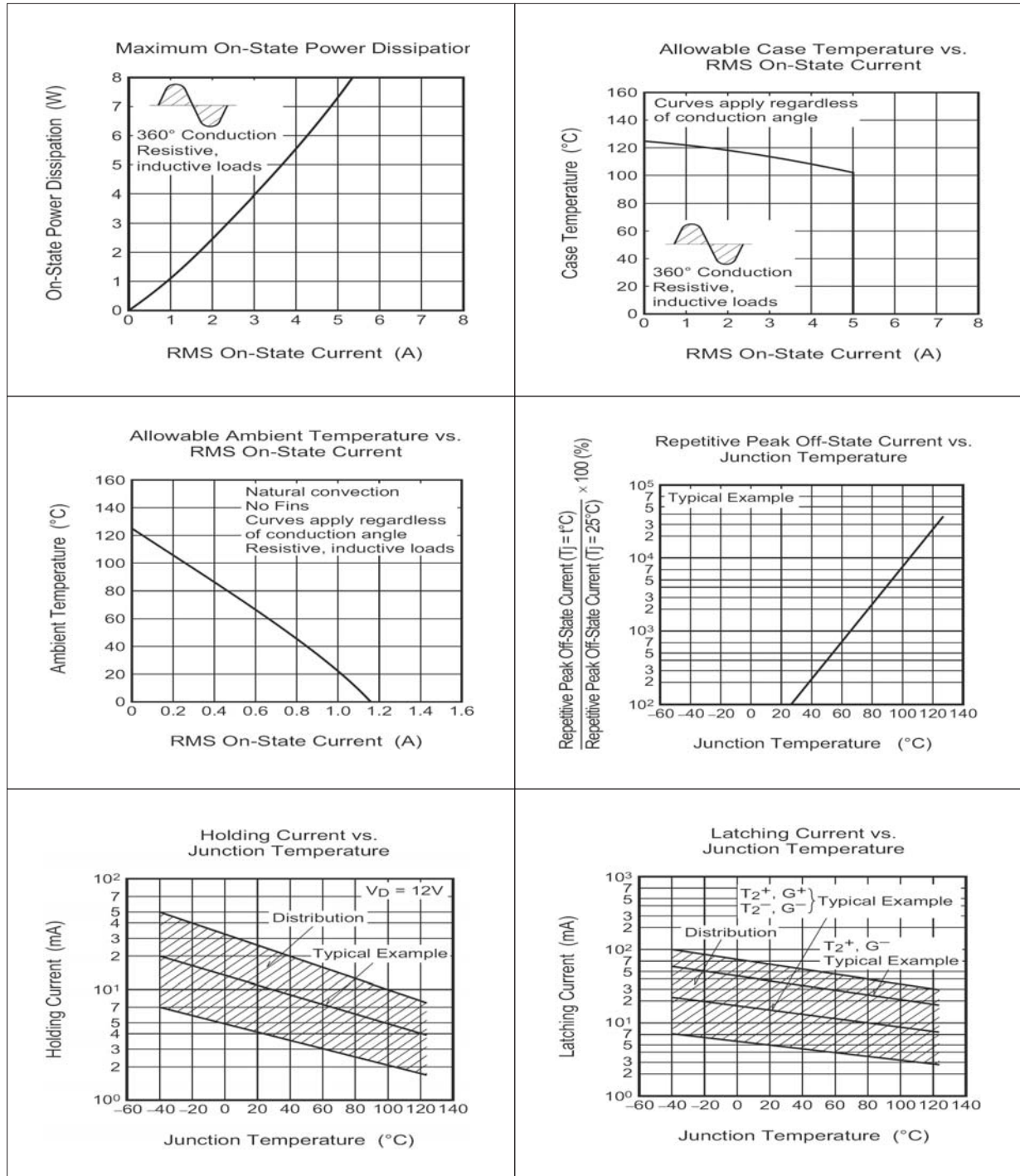
D_{VD}/dt	Critical rate of rise of Off-state voltage	$V_{DM}=67\% V_{DRM(max)}$; $T_j=125^{\circ}\text{C}$; Exponential wave form; $R_{GK}=100\Omega$	50	100	-	V/ μs
t_{gt}	Gate controlled turn-on time	$I_{TM}=10\text{A}; V_D=V_{DRM(max)}; I_G=5\text{mA};$ $dI_G/dt=0.2\text{A}/\mu\text{s}$	-	2	-	μs
t_g	Crcuit commutated tum-off time	$V_{DM}=67\% V_{DRM(max)}; T_j=125^{\circ}\text{C}; I_{TM}=12\text{A}$ $V_R=24\text{V}; dI_{TM}/dt=10\text{A}/\mu\text{s}$ $dv_D/dt=2\text{V}/\mu\text{s}; R_{GK}=1\text{k}\Omega$	-	100	-	μs

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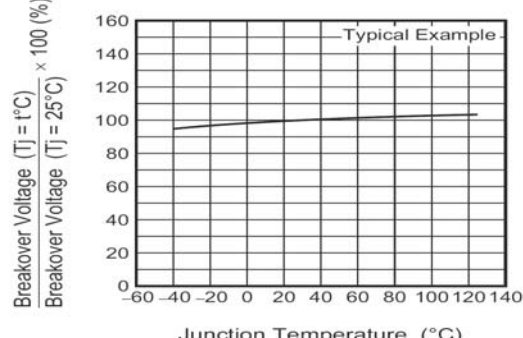
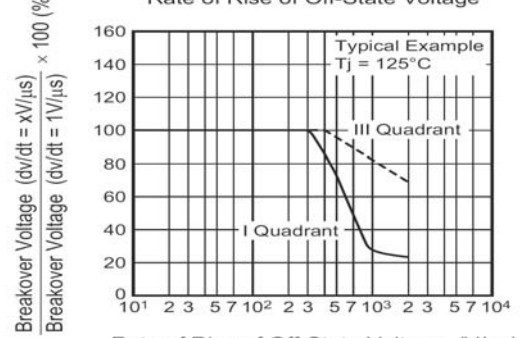
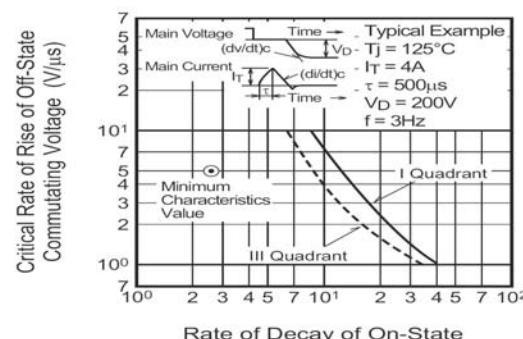
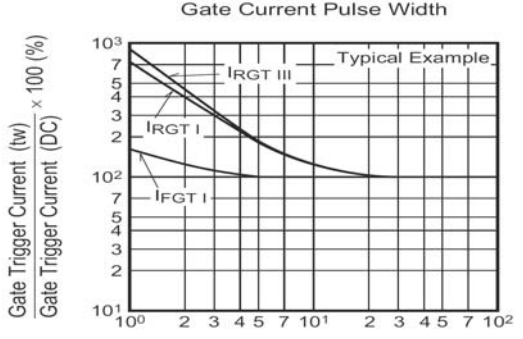
Description



Description



Description

Breakover Voltage vs. Junction Temperature  Typical Example	Breakover Voltage vs. Rate of Rise of Off-State Voltage  Typical Example T_j = 125°C I Quadrant III Quadrant
Commutation Characteristics  Typical Example Main Voltage (dv/dt)_c - V_D - T_j = 125°C Main Current I_T - I_T = 4A τ = 500μs V_D = 200V f = 3Hz I Quadrant III Quadrant Minimum Characteristics Value	Gate Trigger Current vs. Gate Current Pulse Width  Typical Example I_{GT} III I_{GT} I I_{FGT} I

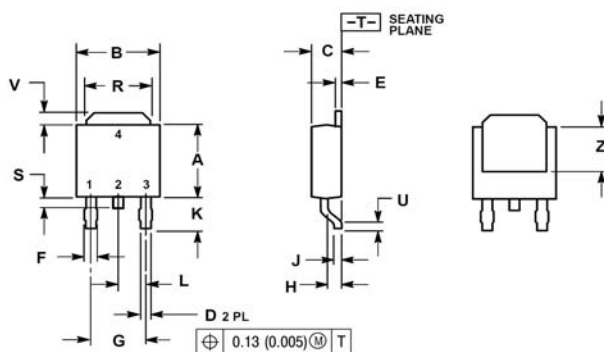
MECHANICAL DATA

Dimensions in mm

Net Mass: 0.45g

TO-252(DPAK)

DPAK
CASE 369C
ISSUE O



NOTES:
1. DIMENSIONING AND TOLERANCING
PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	MIN	MAX	MIN	MAX
A	0.235	0.245	5.97	6.22
B	0.250	0.265	6.35	6.73
C	0.086	0.094	2.19	2.38
D	0.027	0.035	0.69	0.88
E	0.018	0.023	0.46	0.58
F	0.037	0.045	0.94	1.14
G	0.180	BSC	4.58	BSC
H	0.034	0.040	0.87	1.01
J	0.018	0.023	0.46	0.58
K	0.102	0.114	2.60	2.89
L	0.090	BSC	2.29	BSC
R	0.180	0.215	4.57	5.45
S	0.025	0.040	0.63	1.01
U	0.020	---	0.51	---
V	0.035	0.050	0.89	1.27
Z	0.155	---	3.93	---

STYLE 6:
PIN 1. MT1
2. MT2
3. GATE
4. MT2

SOLDERING FOOTPRINT*

