MAC4DHM（G）

## Sensitive Gate Triacs

HAOPIN MICROELECTRONICS CO.,LTD.

Description

Passivated, sensitive gate triacs in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

Symbol	Simplified outline
T2 ⟶ T1 G	TO-252

Pin	Description
1	Main terminal 1 (T1)
2	Main terminal 2 (T2)
3	gate (G)
TAB	Main terminal 2 (T2)

Applications:

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

Features

◆ Blocking voltage to 600 V
◆ On-state RMS current to 4 A

SYMBOL	PARAMETER	Value	Unit
V_{DRM}	Repetitive peak off-state voltages	600	V
$I_{T(RMS)}$	RMS on-state current	4	A
I_{TSM}	Non-repetitive peak on-state current	40	A

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta jc}$	Thermal Resistance - Junction-to-case	-	-	3.5	℃/W
$R_{\theta ja}$	Thermal resistance - Junction to ambient	-	-	88	℃/W

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{DRM}	Repetitive peak off-state Voltages	Tj=-40 to 110℃,sine wave, 50 to 60 Hz,Gate open	-	600	V
$I_{T(RMS)}$	RMS on-state current Full sine wave 60 Hz	Tc=93℃	-	4	A
I^2t	Circuit fusing consideration	t=8.3ms	-	6.6	A^2s
I_{GM}	Peak gate current	Pulse width≤10μs Tc=93℃	-	0.2	A
V_{GM}	Peak gate voltage	Pulse width≤10μs Tc=93℃	-	5	V
P_{GM}	Peak gate power	Pulse width≤10μs Tc=93℃	-	0.5	W
$P_{G(AV)}$	Average gate power	t=8.3ms Tc=108℃	-	0.1	W
T_{stg}	Storage temperature		-40	150	℃
T_j	Operating junction Temperature range		-40	110	℃

$T_J=25^oC$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNIT
Static characteristics							
I_{GT}	Gate trigger current	V_D=12V;R_L=100Ω	MT2(+),G(+)	-	1.8	5	mA
			MT2(+),G(-)	-	2.1	5	
			MT2(-),G(-)	-	2.4	5	
			MT2(-),G(+)	-	4.2	5	
V_{GT}	Gate trigger voltage	V_D=12V;R_L=100Ω	MT2(+),G(+)	0.5	0.62	1.3	V
			MT2(+),G(-)	0.5	0.57	1.3	
			MT2(-),G(-)	0.5	0.65	1.3	
			MT2(-),G(+)	0.5	0.74	1.3	
I_L	Latching current	V_D=12V,I_G=5.0 mA	MT2(+),G(+)	-	1.75	10	mA
		V_D=12V,I_G=5.0 mA	MT2(+),G(-)	-	5.2	10	
		V_D=12V,I_G=5.0 mA	MT2(-),G(-)	-	2.1	10	
		V_D=12V,I_G=10 mA	MT2(-),G(+)	-	2.2	10	
I_{DRM} I_{RRM}	Peak Repetitive blocking current	V_D=Rated V_{DRM},V_{RRM}; Gate open	Tj=25℃ Tj=125℃	-	-	0.01 2.0	mA
I_H	Holding current	V_D=12V,gote open,Initiating current=±200mA		-	1.5	15	mA
V_{TM}	Peak on-state voltage	I_{TM}=±6.0A		-	1.3	1.6	V
V_{GD}	Gate Non-trigger voltage	V_D=12V;R_L=100Ω Tj=110℃		0.1	0.4	-	V

Dynamic Characteristics

			MIN	TYP	MAX	UNIT
D_V/dt	Critical rate of rise of Off-state voltage	V_D=67% V_{DRM} gate open;Tj=110℃;	20	-	-	V/μs
(dI/dt)c	Rate of change of commutating current	V_D=200V, I_{TM}=1.8A dv/dt=1.0V/μs Tj=110℃, f=250 Hz,CL=5.0 μfd, LL=80 mH,RS=56ΩCS=0.03μfd	-	3.0	-	A/ms

HPM™

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Description
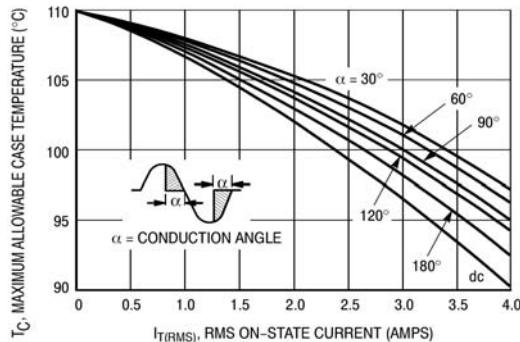
Figure 1. RMS Current Derating
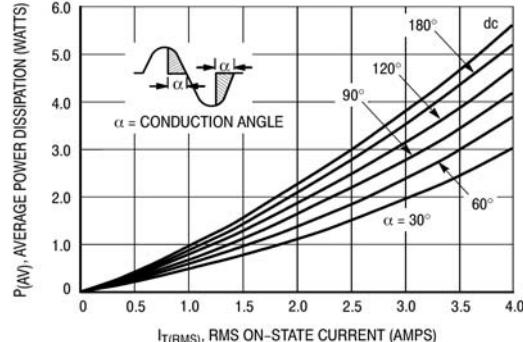
Figure 2. On-State Power Dissipation
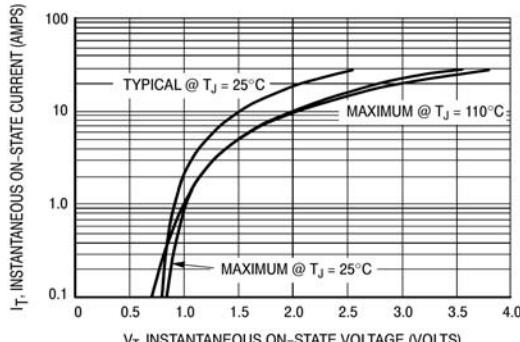
Figure 3. On-State Characteristics
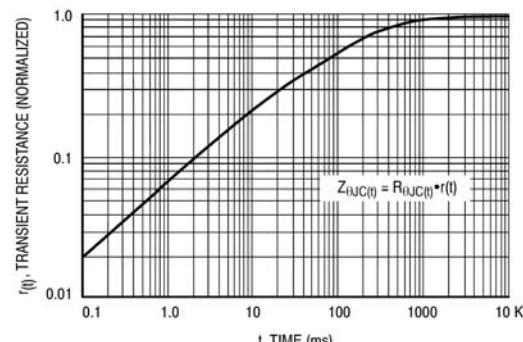
Figure 4. Transient Thermal Response
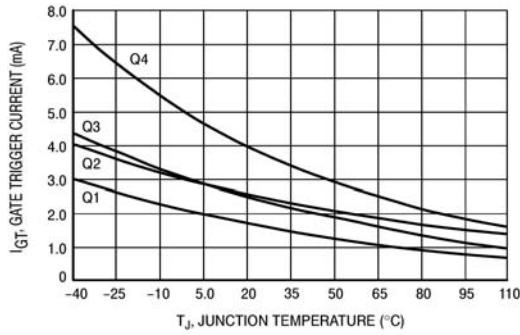
Figure 5. Typical Gate Trigger Current versus Junction Temperature
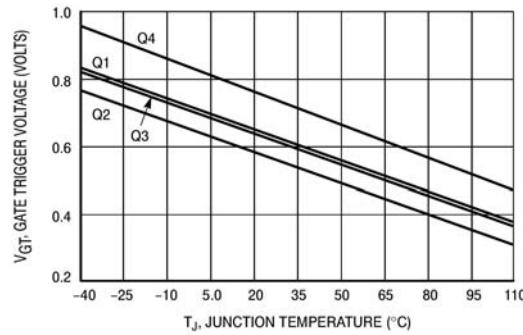
Figure 6. Typical Gate Trigger Voltage versus Junction Temperature

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Description
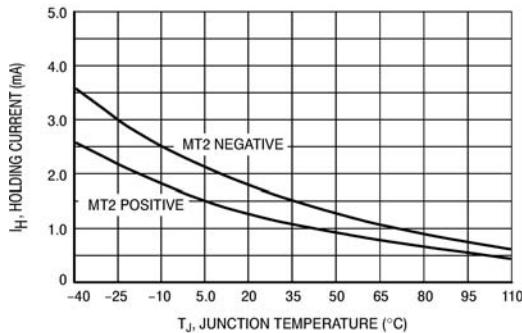
Figure 7. Typical Holding Current versus Junction Temperature
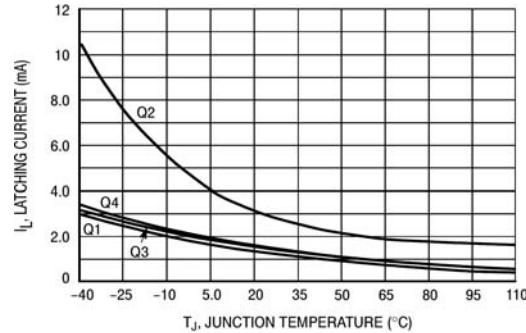
Figure 8. Typical Latching Current versus Junction Temperature
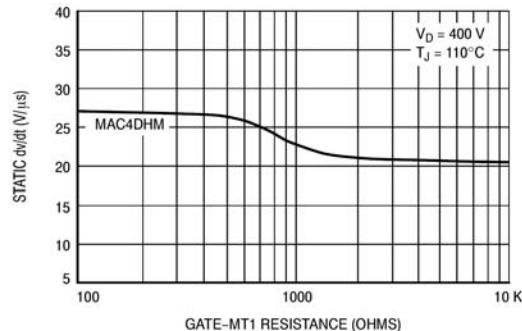
Figure 9. Minimum Exponential Static dv/dt versus Gate−MT1 Resistance
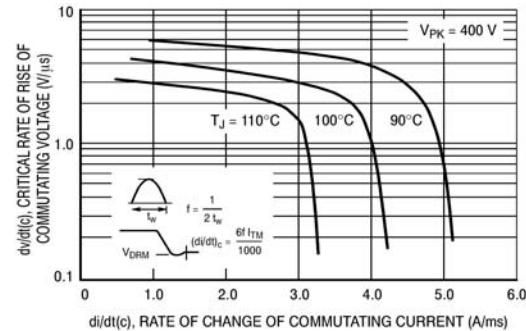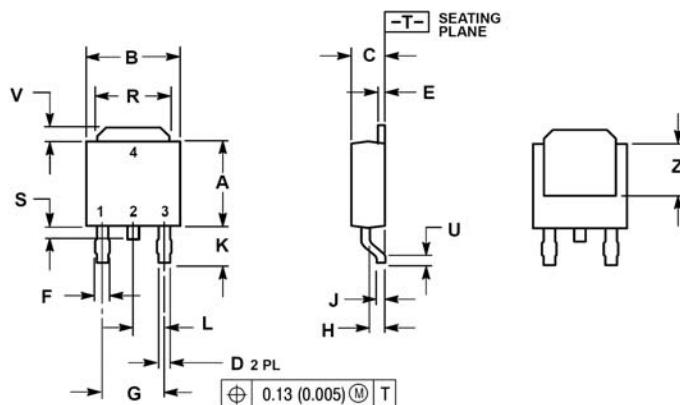
Figure 10. Typical Critical Rate of Rise of Commutating Voltage

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MECHANICAL DATA

Dimensions in mm
Net Mass: 0.45 g

SEATING PLANE

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

DIM	INCHES		MILLIMETERS	
	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