X0405

主要参数 MAIN CHARACTERISTICS

$I_{T(RMS)}$	4A
V_{DRM}/V_{RRM}	600/800V
I_{GT}	10-100 μ A

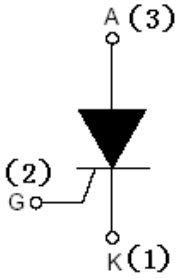
用途 APPLICATIONS

- 半交流开关
- 相位控制
- Half AC switching
- Phase control

产品特性 FEATURES

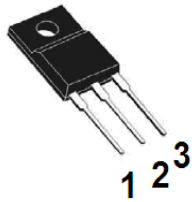
- 玻璃钝化芯片，高可靠性和一致性
- 低通态电流和高浪涌电流能力
- 环保 RoHS 产品
- Glass-passivated mesa chip for high reliability and uniform
- Low on-state voltage and High I_{TSM}
- RoHS products

封装 Package



序号 Pin	引线名称 Description
1	阴极 K
2	阳极 A
3	门极 G

TO-220MF-K1



订货信息 ORDER MESSAGES

订 货 型 号 Order codes				印 记 Marking	封 装 Package
有卤-条管	无卤-条管	有卤-编带	无卤-编带		
Halogen-Tube	halogen-Free-Tube	Halogen-Reel	Halogen-Free-Reel		
X045-F1-B	X405 –F1-BR	N/A	N/A	X0405	TO-220MF-K1

绝对最大额定值 ABSOLUTE RATINGS (T_C=25℃)

项 目 Parameter	符 号 Symbol	试 验 条 件 Condition	数 值 Value	单位 Unit
断态（反向）重复峰值电压 Repetitive peak off-state （reverse） voltage	V_{DRM} /V_{RRM}		600/800	V
通态平均电流 Average on-state current	$I_{T（AV）}$		2.5	A
通态方均根电流 On-state RMS current	$I_{T（RMS）}$		4	A
非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current	I_{TSM}	half sine wave ,t=10ms	30	A
熔断 I^2t I^2t for fusing	I^2t	half sine wave，t=10ms	4.5	A^2s
通态电流临界上升率Repetitive rate of rise of on-state current after riggering	dI/dt	I_{TM}=2.0A, I_G=0.02A,dI_G/dt=1.0A/μs	50	A/μs
峰值门极电流 Peak gate current	I_{GM}		1.2	A
平均门极功率 Average gate power	$P_{G(AV)}$	over any 20ms period	0.2	W
存储温度 Storage temperature	T_{stg}		40~150	℃
操作结温 Operation junction temperature	T_{VJ}		-40~125	℃

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	条 件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit
结到引线的热阻 Thermal resistance junction to lead	$R_{th(j-l)}$	half cycle（TO-220MF-K1）	-	-	4	℃/W

电特性 ELECTRICAL CHARACTERISTIC (T_C=25℃)

项　　目 Parameter	符　号 Symbol	测 试 条 件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit
断态峰值重复电流 Peak Repetitive Blocking Current	I_{DRM}	V_{DM}=V_{DRM}, Tj=125℃, R_{GK}=1KΩ	-	-	1	mA
反向峰值重复电流 Peak Repetitive Reverse Current	I_{RRM}	V_{RM}=V_{RRM}, Tj=125℃, R_{GK}=1KΩ	-	-	1	mA
峰值通态电压 Peak on-state voltage	V_{TM}	I_{TM}=8A	-	—	1.8	V
门极触发电流 Gate trigger current	I_{GT}	V_{AK}=12V,R_L=100Ω	10	-	100	μA
门极触发电压 Gate trigger voltage	V_{GT}	V_{AK}=7V,R_L=100Ω	-	0.62	0.8	V
维持电流 Holding current	I_H	V_{AK}=7V, Initiating Current = 20 mA	-	-	5	mA
擎住电流 Latch current	I_L	V_{AK}=7V,I_T=200μA	-	-	5	mA
断态临界电压上升率 Rise of off- state voltage	dV/dt	V_{DM}=100% $V_{DRM(MAX)}$, Tj=125℃,RGK=1KΩ	15		-	V/μs

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

Fig. 1: Maximum average power dissipation versus average on-state current.

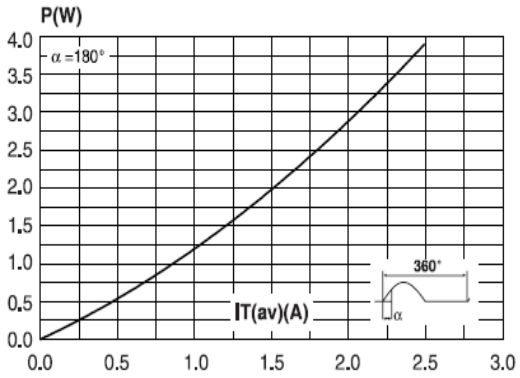


Fig. 2-1: Average and D.C. on-state current versus lead temperature.

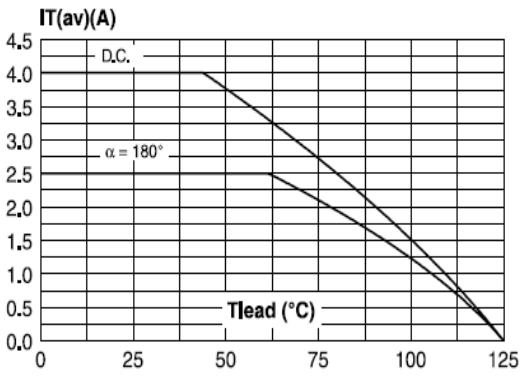


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (device mounted on FR4 with recommended pad layout).

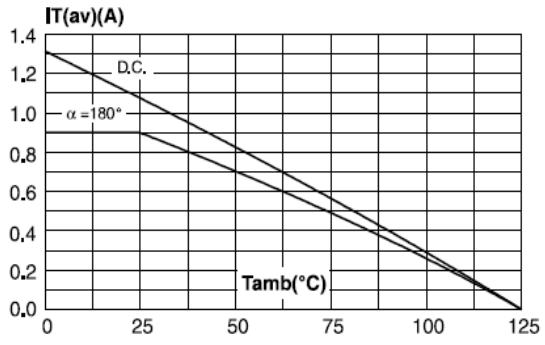


Fig. 3: Relative variation of thermal impedance junction to ambient versus pulse duration.

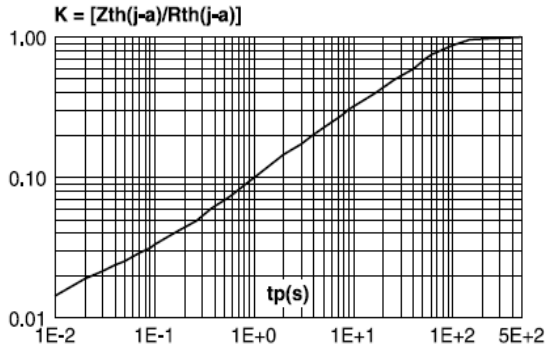


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

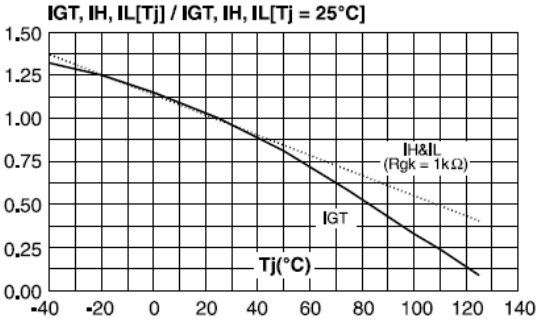


Fig. 5: Relative variation of holding current versus gate-cathode resistance (typical values).

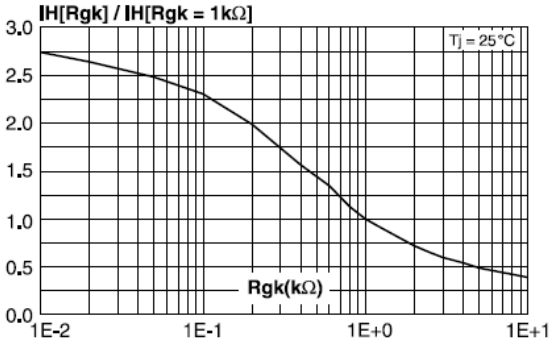


Fig. 6: Relative variation of dV/dt immunity versus gate-cathode resistance (typical values).

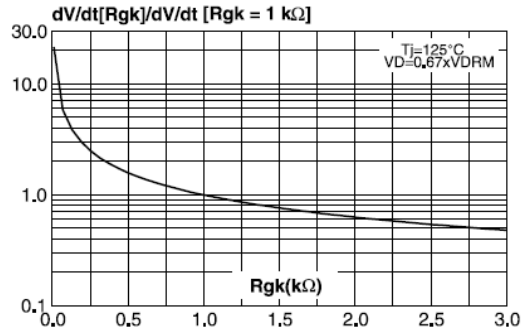
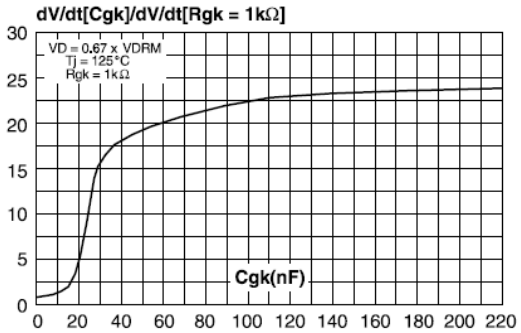
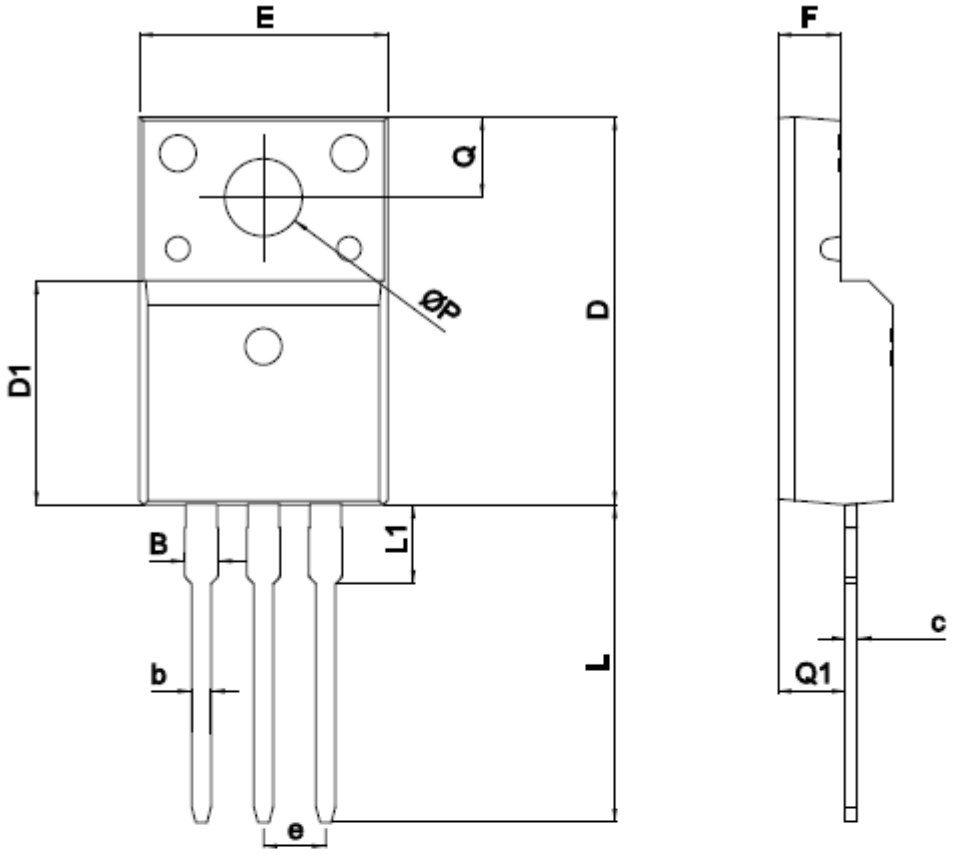


Fig. 7: Relative variation of dV/dt immunity versus gate-cathode capacitance (typical values).



外形尺寸 **PACKAGE MECHANICAL DATA** 单位**Unit ： mm**

TO-220MF-K1



SYMBOL	mm	
	MIN	MAX
A	4.5	4.9
B	1.22	1.47
b	0.7	0.9
c	0.45	0.60
D	15.6	16.1
D1	9.0	9.3
e	2.54TYPE	
E	9.9	10.4
F	2.3	2.8
L	12.6	13.3
L1	3.1	3.4
Q	3.2	3.4
Q1	2.6	2.9
ΦP	3.0	3.5

注意事项

1. 吉林华微电子股份有限公司的产品销售分为直销和销售代理，无论哪种方式，订货时请与公司核实。

2. 购买时请认清公司商标，如有疑问请与公司本部联系。

3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。

4. 本说明书如有版本变更不另外告知

NOTE

1. Jilin Sino-microelectronics co., Ltd sales its product either through direct sales or sales agent, thus, for customers, when ordering, please check with our company.
2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
4. Jilin Sino-microelectronics co., Ltd reserves the right to make changes in this specification sheet and is subject to change without prior notice.

联系方式

吉林华微电子股份有限公司
公司地址：吉林省吉林市深圳街 99 号

邮编：132013
总机：86-432-64678411
传真：86-432-64665812
网址：www.hwdz.com.cn
海外业务部
地址：吉林省吉林市深圳街 99 号

邮编：132013
电话：86-432-64675588
64675688
64678411
传真：86-432-64671533

CONTACT

JILIN SINO-MICROELECTRONICS CO., LTD.
ADD: No.99 Shenzhen Street, Jilin City, Jilin Province, China.
Post Code: 132013
Tel: 86-432-64678411
Fax: 86-432-64665812
Web Site: www.hwdz.com.cn
MARKET DEPARTMENT
ADD: No.99 Shenzhen Street, Jilin City, Jilin Province, China.
Post Code: 132013
Tel: 86-432-64675588
64675688
64678411
Fax: 86-432-64671533