

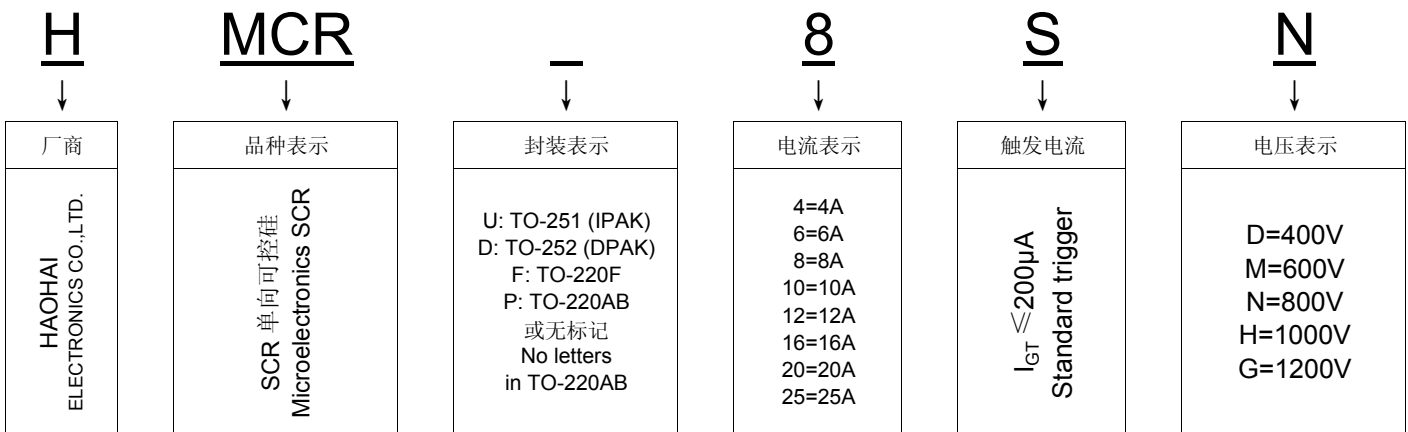
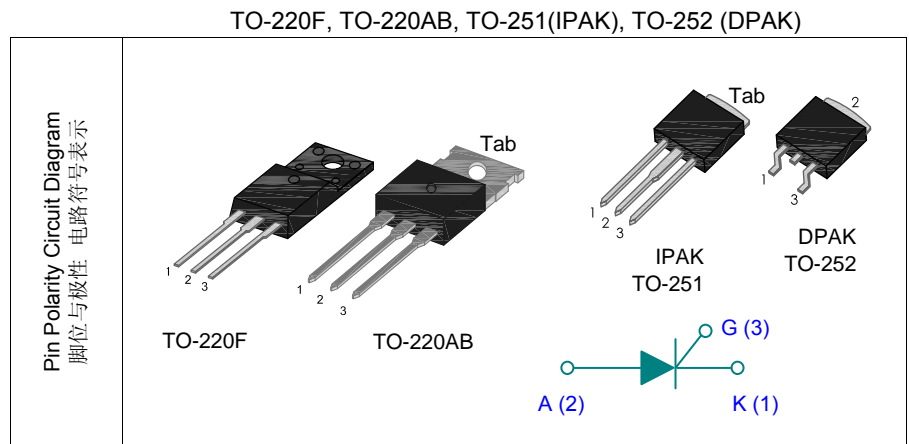
<ul style="list-style-type: none"> ■ Sensitive Gate Allows Triggering by Microcontrollers and other Logic Circuits ■ Blocking Voltage to 1000 Volts ■ On-State Current Rating of 8A RMS at 80°C ■ High Surge Current Capability 80A ■ Package: TO-220AB & TO-252 (DPAK) ■ Glass Passivated Junctions for Reliability and Uniformity ■ Minimum and Maximum Values of I_{GT}, V_{GT} and I_H Specified for Ease of Design ■ Immunity to dv/dt: 5 V/sec Minimum at 110°C 	<p>■ 产品特点 大电流、高灵敏度、微触发、特制高压单向可控硅；PNPN四层结构硅器件；双面台面玻璃钝化工艺；背面多层金属电极；具有较高的阻断电压和抗电流冲击能力；可以适应于DB3触发电路、直流和交流光藕触发电路。</p> <p>■ 主要用途 自动化电气设备；开关电源；无功补偿；复合开关；交流电开关；交流/直流电源变换；工业和家庭电加热器的温度控制；逆变电源；大功率捕鱼器；电机马达调速控制电路；以及三相交流输入的高压电路、变频电路。</p> <p>■ 代替型号 TS420-600B、TS420-700B、TS420-600H、TS420-700H、TIC106D、TIC106M、TIC106S、TIC106N、TS820-600B、TS820-700B、TS820-600H、TS820-700H、BT150-600R、BT150-800R、BT258-600R、BT258-800R、TYN608、TYN808、TYN1008、TYN1208</p>
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■ Product Model Reference & Naming 【产品型号参考及型号命名】

8A	产品型号列表、种类区分、型号对照电压值						I_{GT}
	封装标识	400V	600V	800V	1000V	1200V	
TO-251	U	MCRU8SD	MCRU8SM	MCRU8SN	MCRU8SH	MCRU8SG	"S" ≤200μA
TO-252	D	MCRD8SD	MCRD8SM	MCRD8SN	MCRD8SH	MCRD8SG	
TO-220F	F	MCRF8SD	MCRF8SM	MCRF8SN	MCRF8SH	MCRF8SG	
TO-220AB	无标记	MCR8SD	MCR8SM	MCR8SN	MCR8SH	MCR8SG	
Remarks (说明)		低压品种	标准品种	高压品种	未量产	特制高压	

■ PINNING: Insulated Package

Pin in Symbol and Description			
1	K	Cathode	阴极
2	A	Anode	阳极
3	G	Gate	门-控制极
4		Tab	散热片



■ ABSOLUTE RATINGS (Limiting Values) 【额定值参数】

SYMBOL	Parameter & Test Conditions	Value	Unit
$I_{T(RMS)}$	On-State RMS Current (180°C Conduction Angles, $T_C=80^\circ\text{C}$)	8	A
I_{TSM}	Peak Non-Repetitive Surge Current (½ Cycle, Sine Wave) (60Hz, $T_J=-40^\circ\text{C}\sim+110^\circ\text{C}$)	90	
I_{GM}	Forward Peak Gate Current (Pulse Width $\leq 1\mu\text{s}$, $T_C=80^\circ\text{C}$)	2.0	
I^2t	Circuit Fusing Consideration (t=8.3mS)	34	A2ses
P_{GM}	Forward Peak Gate Power (Pulse Width $\leq 1\mu\text{s}$, $T_C=80^\circ\text{C}$)	5	W
$P_{G(AV)}$	Forward Average Gate Power (t=8.3mS, $T_C=80^\circ\text{C}$)	0.5	
V_{DRM} V_{RRM}	Peak Repetitive Off-State Voltage ($T_J=-40\sim 125^\circ\text{C}$, Sine Wave, 50~60Hz; Gate Open) See Reference Feature Description	400~1200	V
T_j	Operating Junction Temperature Range	-40~+125	°C
T_{stg}	Storage Temperature Range	-40~+150	
T_L	Maximum Lead Temperature for Soldering Purposes 1/8, from Case for 10 Seconds	260	

V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ Unless Otherwise Noted)

SYMBOL	Parameter & Test Conditions	Min	Typ	Max	Unit	
I_{GT}	$V_D=12\text{V}$, $R_L=100\Omega$ ($T_J=25^\circ\text{C}$)	5.0	25	200	μA	
I_H	Holding Current ($I_T=200\text{mA}$, $V_D=12\text{V}_{DC}$, $T_C=25^\circ\text{C}$)	0.5	1.0	6.0	mA	
I_L	Latching Current ($V_D=12\text{V}$, $I_G=200\mu\text{A}$, $T_C=25^\circ\text{C}$)	--	0.6	8.0		
V_{GT}	Gate Trigger Voltage ($V_D=12\text{V}$, $R_L=100\Omega$, $T_J=25^\circ\text{C}$)	0.3	0.6	1.0	V	
	Gate Trigger Voltage ($V_D=12\text{V}$, $R_L=100\Omega$, $T_J=-40^\circ\text{C}$)	--	--	1.5		
V_{GD}	Gate Non-Trigger Voltage ($V_D=12\text{V}$, $R_L=100\Omega$, $T_J=110^\circ\text{C}$)	0.2	→	1.8		
V_{TM}	Peak Forward On-State Voltage ($I_{TM}=16\text{A Peak @ } T_J=25^\circ\text{C}$)	--	1.4	1.8		
I_{DRM} I_{RRM}	Peak Reverse Blocking Current	$T_J=25^\circ\text{C}$	--	--	10	μA
		$T_J=110^\circ\text{C}$	--	--	500	

■ DYNAMIC CHARACTERISTICS

SYMBOL	Parameter & Test Conditions	Min	Typ	Max	Unit
dv/dt	Critical Rate of Rise of Off-State Voltage ($T_J=110^\circ\text{C}$)	2.0	10	--	V/ μs
di/dt	Critical Rate of Rise of On-State Current	--	--	100	A/ μs

■ THERMAL CHARACTERISTICS

SYMBOL	Parameter & Test Conditions	Min	Typ	Max	Unit
$R_{th(j-c)}$	Thermal Resistance-Junction-to-Case	--	--	2.20	°C/W
$R_{th(j-a)}$	Thermal Resistance-Junction-to-Ambient	--	--	62.5	

Indicates Pulse Test: Pulse Width $\leq 2.0\text{ ms}$, Duty Cycle $\leq 2\%$. 1、 $R_{GK}=1000\Omega$ included in measurement. 2、Does not include R_{GK} in measurement.

Voltage Current Characteristic of SCR 可控硅电压电流特性

Symbol	Parameter
V _{DRM}	Peak Repetitive Off State Forward Voltage
I _{DRM}	Peak Forward Blocking Current
V _{RRM}	Peak Repetitive Off State Reverse Voltage
I _{RRM}	Peak Reverse Blocking Current
V _{TM}	Peak On State Voltage
I _H	Holding Current

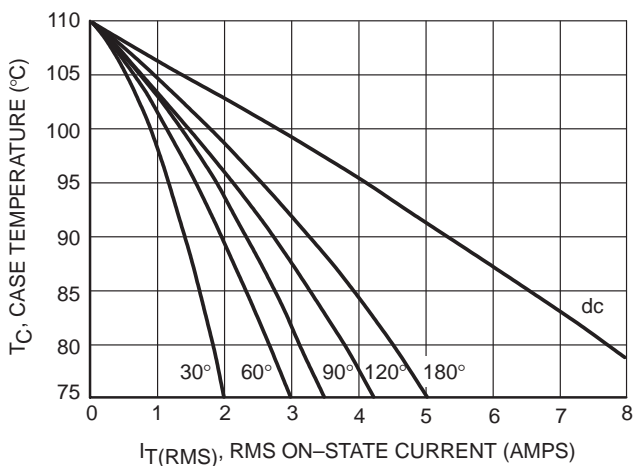
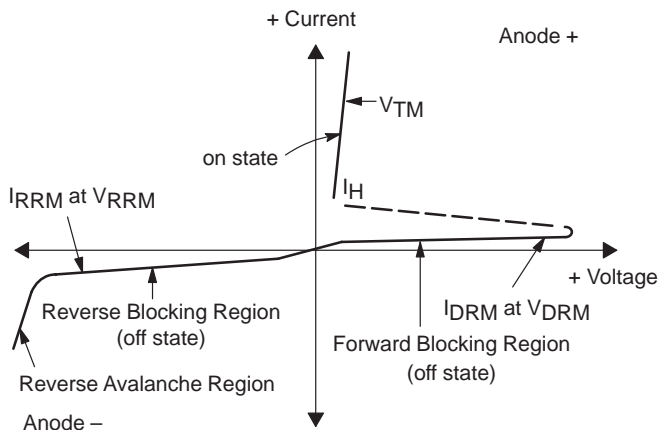


Fig-1. Typical RMS Current Derating

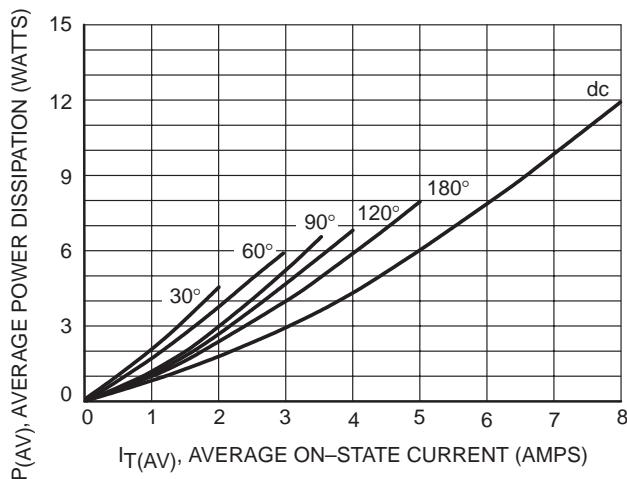


Fig-2. On-State Power Dissipation

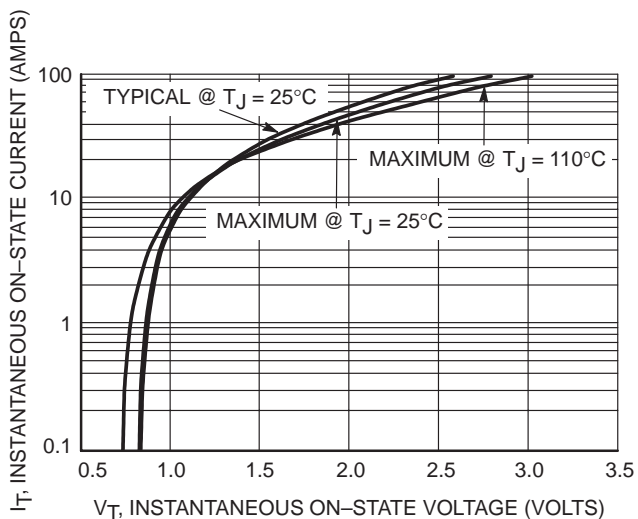


Fig-3. Typical On-State Characteristics

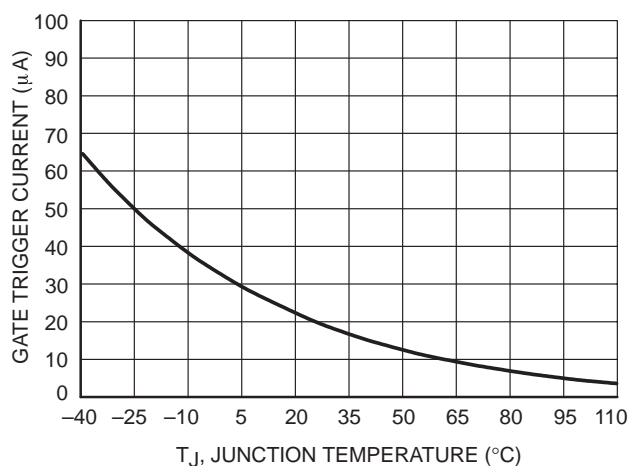
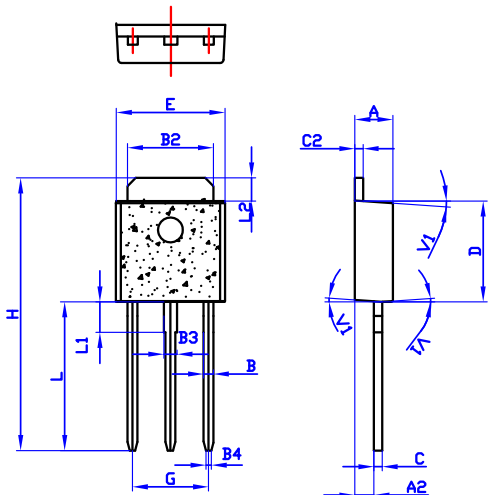


Fig-4. Typical Gate Trigger Current versus Junction Temperature

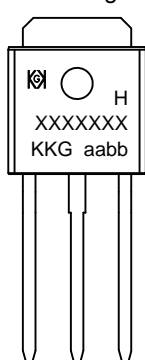
PACKAGE MECHANICAL DATA (mm & inch) 封装尺寸数据 (毫米与英寸对照)

打印标识



TO-251 (IPAK)
Package Code: U

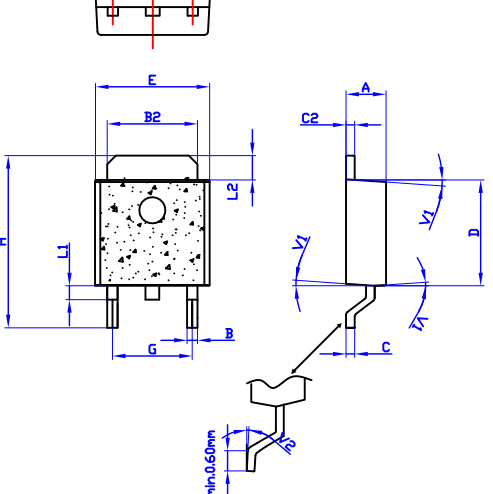
REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.086	0.095
A1	0.90	1.10	0.035	0.043
B	0.55	0.65	0.021	0.026
B2	5.10	5.40	0.200	0.212
B3	0.76	0.85	0.030	0.033
B4	0.32		0.013	
C	0.45	0.62	0.017	0.024
C2	0.48	0.62	0.019	0.024
D	6.00	6.20	0.236	0.244
E	6.40	6.70	0.252	0.264
G	4.40	4.70	0.173	0.185
H	16.0	16.7	0.630	0.658
L	8.90	9.40	0.350	0.370
L1	1.80	1.90	0.071	0.075
L2	1.37	1.50	0.054	0.059
V1	4°		4°	



Marking

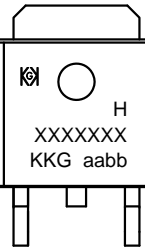
H: HAOHAI
XXXXXXX: Part Number
KKG: Registered trademark
aa: Year
bb: Week (01-53)
LOGO in
The upper left corner mark

H: 浩海电子
XXXXXXX: 产品型号
KKG: 注册商标
aa: 出厂年份
bb: 出厂自然周 (01-53)
左上角为公司LOGO



TO-252 (DPAK)
Package Code: D

REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.086	0.095
B	0.55	0.65	0.021	0.026
B2	5.10	5.40	0.200	0.212
C	0.45	0.62	0.017	0.024
C2	0.48	0.62	0.019	0.024
D	6.00	6.20	0.236	0.244
E	6.40	6.70	0.252	0.264
G	4.40	4.70	0.173	0.185
H	9.50	10.4	0.374	0.410
L1	0.80		0.031	
L2	1.37	1.5	0.054	0.059
V1	4°		4°	
V2	-3°	-7°	-3°	-7°



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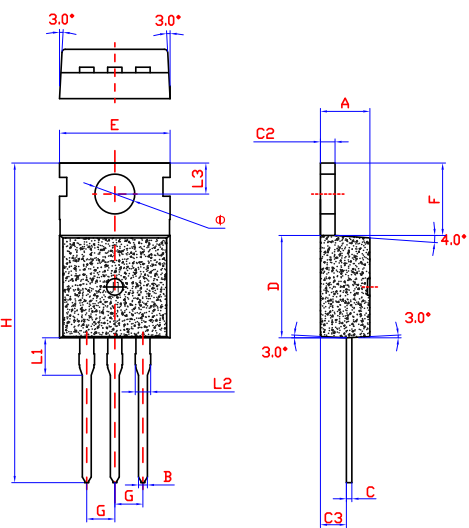
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TO-251 (IPAK)				TO-252 (DPAK)		
REF.	Tube.	BOX	Carton	Reel	BOX	Carton
QTY	80 Pcs	4,000 Pcs	24,000 Pcs	25000 Pcs	5,000 Pcs	25,000 Pcs
Size						
G.W.						

PACKAGE MECHANICAL DATA (mm & inch) 封装尺寸数据 (毫米与英寸对照)

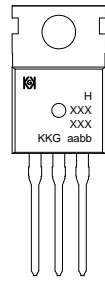
打印标识

TO-220AB PACKAGE DIMENSIONS



REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	1.181
B	0.70	0.90	0.027	0.035
C	0.45	0.60	0.018	0.024
C2	1.23	1.32	0.048	0.052
C3	2.20	2.60	0.086	0.102
D	8.90	9.90	0.350	0.390
E	9.90	10.3	0.390	0.406
F	6.30	6.90	0.248	0.272
G	2.54		0.100	
H	28.0	29.8	11.0	11.70
L1	3.20		0.126	
L2	1.14	1.70	0.045	0.067
L3	2.65	2.95	0.104	0.116
Φ	3.60		0.142	

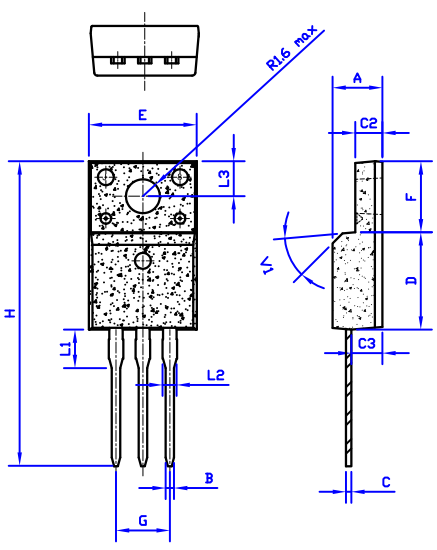
Marking



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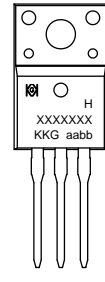
H: 浩海电子
XXXXXXX: 产品型号
KKG: 注册商标
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左上角为公司LOGO

TO-220F PACKAGE DIMENSIONS



REF	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.80	0.173	0.189
B	0.74	0.83	0.029	0.033
C	0.50	0.75	0.020	0.030
C2	2.40	2.70	0.094	0.106
C3	2.60	3.00	0.102	0.118
D	8.80	9.30	0.346	0.367
E	9.70	10.30	0.382	0.406
F	6.40	6.80	0.252	0.268
G	5.00	5.20	0.197	0.205
H	28.0	29.80	11.00	11.70
L1	3.63 TYP		0.143	
L2	1.14	1.70	0.044	0.067
L3	3.30 TYP		0.130	
V1	40		40	

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左上角为公司LOGO

Packaging Specifications (包装规格、装箱规格、包装尺寸数据)

REF.	TO-220AB			TO-220F		
	Tube.	BOX	Carton	Tube.	BOX	Carton
QTY	50 Pcs	1,000 Pcs	5,000 Pcs	50 Pcs	1,000 Pcs	5,000 Pcs
Size						
G.W.						

Manufacturers version information
2005-03-20, KKG™ Product Data-1.0
2012-04-01, KKG™ Product Data-1.1
2014-08-10, KKG™ Product Data-1.2



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产品主页: <http://www.szhhe.com> <http://www.kkg.com.cn>