

# CP2050N3A

## 主要参数 MAIN CHARACTERISTICS

$I_{T(RMS)}$	20A
$V_{DRM}$	800V
$I_{GT(1,2,3)}$	50mA

### 用途

- 交流开关
- 相位控制

### 产品特性

- 平面钝化芯片高可靠性、一致性
- 三象限可控硅，触发电流的一致性
- 环保 RoHS 产品
- 150℃ 高结温产品

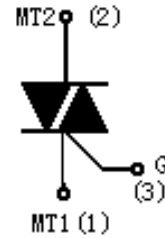
### APPLICATIONS

- AC switching
- Phase control

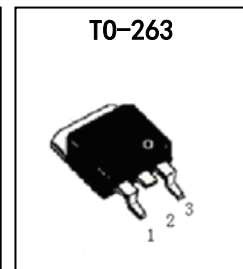
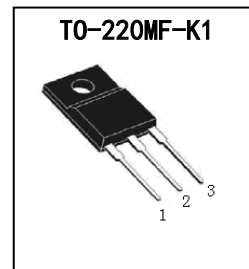
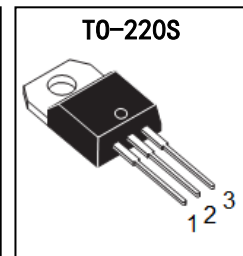
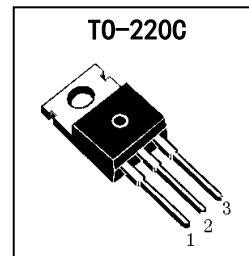
### FEATURES

- Planar chip for reliability and uniform
- Uniform gate trigger currents in three quadrants
- RoHS products
- 150℃ High operating junction temperature

## 封装 Package



序号 Pin	引线名称 Description
1	主电极 1 MT1
2	主电极 2 MT2
3	门极 G



## 订货信息 ORDER MESSAGES

订货型号 Order codes				印 记 Marking	封 装 Package
有卤-条管 Halogen-Tube	无卤-条管 halogen-Free-Tube	有卤-编带 Halogen-Reel	无卤-编带 Halogen-Free-Reel		
CP2050N3A-C-B	CP2050N3A-C-BR	N/A	N/A	CP2050N3A	TO-220C
CP2050N3A-CB-B	CP2050N3A-CB-BR	N/A	N/A	CP2050N3A	TO-220S
CP2050N3A-F1-B	CP2050N3A-F1-BR	N/A	N/A	CP2050N3A	TO-220MF-K1
CP2050N3A-S-B	CP2050N3A-S-BR	CP2050N3A-S-A	CP2050N3A-S-AR	CP2050N3A	TO-263

**概述 GENERAL DESCRIPTION**

CP2050N3A是平面芯片结构的三象限双向晶闸管，产品在第四象限不可触发，具有较高的使用可靠性。可适用于容易出现较高dV/dt或dI/dt的交流全波控制线路中，特别推荐应用与电感性负载控制（如电机控制线路）。器件封装形式有TO-220C、TO-220S（引线与散热片绝缘）、TO-220MF-K1（塑料全封装）、TO-263。

CP2050N3A are Planar three quadrant triacs, designed for high performance full-wave ac control applications where high static and dynamic dV/dt and high dI/dt can occur. They are specially recommended for use on inductive loads such as motor control circuits. Available packages are TO-220C、TO-220S (internally insulated) 、TO-220MF-K1 (plastic envelope) and TO-263.

**绝对最大额定值 ABSOLUTE RATINGS (T<sub>c</sub>=25℃)**

项 目 Parameter	符 号 Symbol	试 验 条 件 Condition	数 值 Value	单 位 Unit
重复峰值断态电压 Repetitive peak off-state voltage	V <sub>DRM</sub>		±800	V
通态方均根电流 On-state RMS current	I <sub>T(RMS)</sub>	full sine wave,	20	A
非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current	I <sub>TSM</sub>	full sine wave ,t=20ms	200	A
		full sine wave ,t=16.7ms	210	A
	I <sup>2</sup> t	t=10ms	200	A <sup>2</sup> s
通态电流临界上升率 Repetitive rate of rise of on-state current after triggering	dI/dt	I <sub>TM</sub> =28A, I <sub>G</sub> =0.2A, dI <sub>G</sub> /dt=0.2A/μs	100	A/μs
峰值门极电流 Peak gate current	I <sub>GM</sub>		2	A
峰值门极电压 Peak gate voltage	V <sub>GM</sub>		5	V
峰值门极功率 Peak gate power	P <sub>GM</sub>		5	W
平均门极功率 Average gate power	P <sub>G(AV)</sub>	over any 20ms period	0.5	W
存储温度 Storage temperature	T <sub>stg</sub>		-40~150	℃
操作结温 Operation junction temperature	T <sub>VJ</sub>		150	℃

电特性 ELECTRICAL CHARACTERISTIC (T<sub>c</sub>=25°C)

项 目 Parameter	符 号 Symbol	测 试 条 件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit	
峰值重复断态电流 Peak Repetitive Blocking Current	I <sub>DRM</sub>	V <sub>DM</sub> =V <sub>DRM</sub> , T <sub>j</sub> =25°C, gate open	-	-	10	μA	
		V <sub>DM</sub> =V <sub>DRM</sub> , T <sub>j</sub> =150°C, gate open	-	-	3.0	mA	
峰值通态电压 Peak on-state voltage	V <sub>TM</sub>	I <sub>TM</sub> =28A	-	-	1.7	V	
门极触发电流 Gate trigger current	I <sub>GT</sub>	V <sub>DM</sub> =12V, R <sub>L</sub> =100Ω	MT1(-),MT2(+),G(+)	2	-	50	mA
			MT1(-),MT2(+),G(-)	2	-	50	mA
			MT1(+),MT2(-),G(-)	2	-	50	mA
门极触发电压 Gate trigger voltage	V <sub>GT</sub>	V <sub>DM</sub> =12V, R <sub>L</sub> =100Ω	MT1(-),MT2(+),G(+)	-	0.7	1.5	V
			MT1(-),MT2(+),G(-)	-	0.7	1.5	V
			MT1(+),MT2(-),G(-)	-	0.7	1.5	V
维持电流 Holding current	I <sub>H</sub>	V <sub>DM</sub> =12V, I <sub>GT</sub> =0.1A	-	-	75	mA	
擎住电流 Latching current	I <sub>L</sub>	V <sub>DM</sub> =12V, I <sub>GT</sub> =0.1A	MT1(-),MT2(+),G(+)	-	-	90	mA
			MT1(-),MT2(+),G(-)	-	-	110	mA
			MT1(+),MT2(-),G(-)	-	-	90	mA
断态临界电压上升率 Rise of off- state voltage	dV/dt	V <sub>DM</sub> =67% V <sub>DRM(MAX)</sub> , T <sub>j</sub> =150°C, gate open	1000	-	-	V/μs	
门极开通时间 Gate controlled turn-on time	t <sub>gt</sub>	I <sub>TM</sub> =28A, V <sub>DM</sub> =V <sub>DRM(MAX)</sub> , I <sub>G</sub> =0.1A, di <sub>G</sub> /dt=5A/μs	-	2	-	μs	

## 热特性 THERMAL CHARACTERISTIC

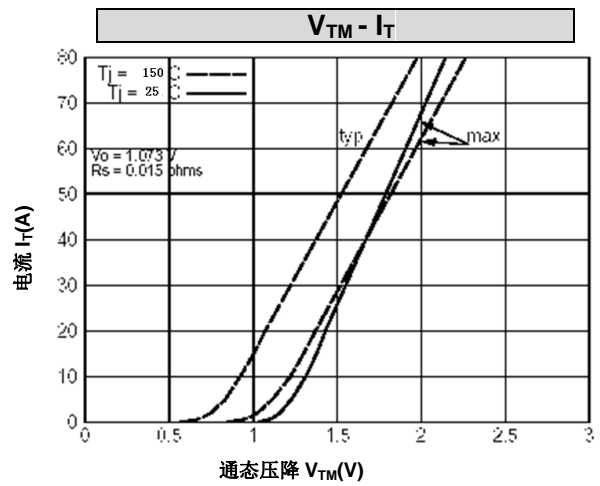
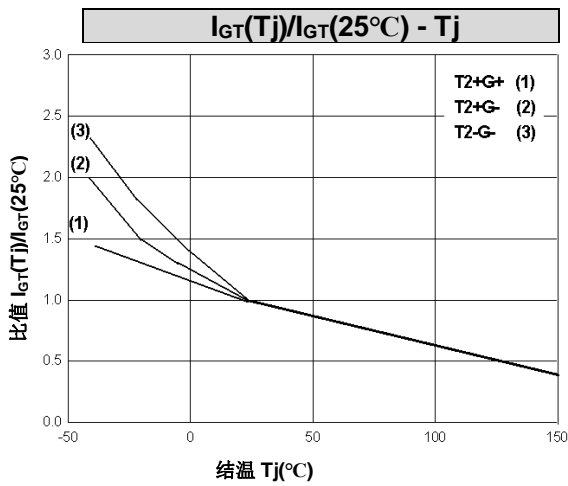
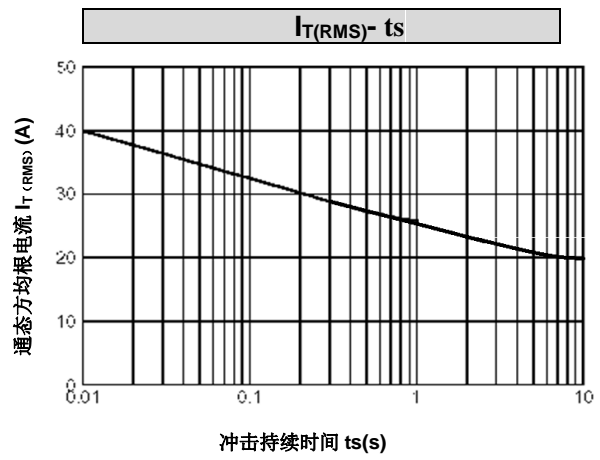
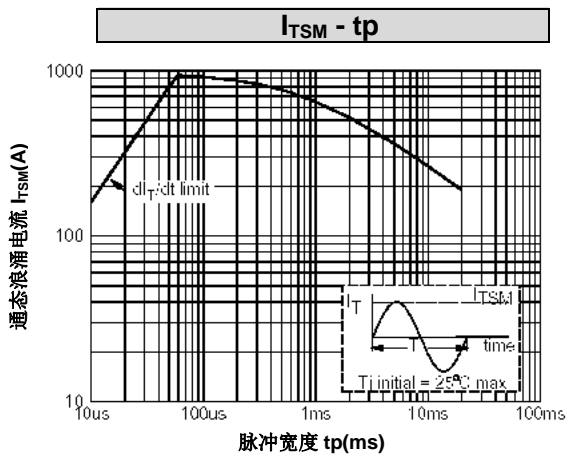
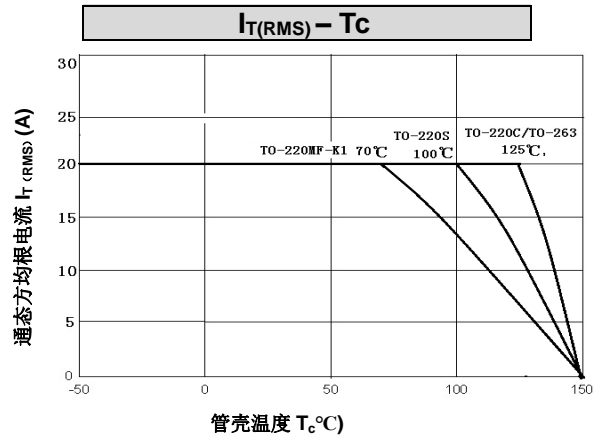
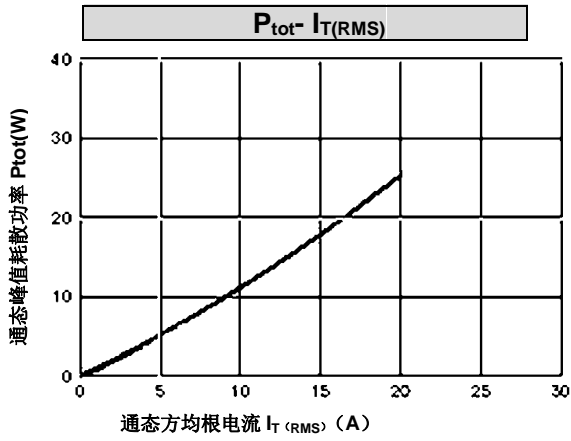
项 目 Parameter	符 号 Symbol	条 件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit
结到管壳的热阻 Thermal resistance junction to case	R <sub>th(j-c)</sub>	full cycle(TO-220C)			1.0	°C/W
		full cycle(TO-220S)			2.0	°C/W
		full cycle(TO-220MF-K1)			3.2	°C/W
		full cycle(TO-263)			1.0	°C/W

## 电绝缘特性 ELECTRICAL ISOLATION

项 目 Parameter	符 号 Symbol	条 件 Condition	数 值 Value	单 位 Unit
绝缘电压 Isolation voltage	V <sub>ISOL</sub>	1 minute, leads to mounting tab TO-220S/TO-220MF-K1	2000	V



特征曲线 ELECTRICAL CHARACTERISTICS (curves)

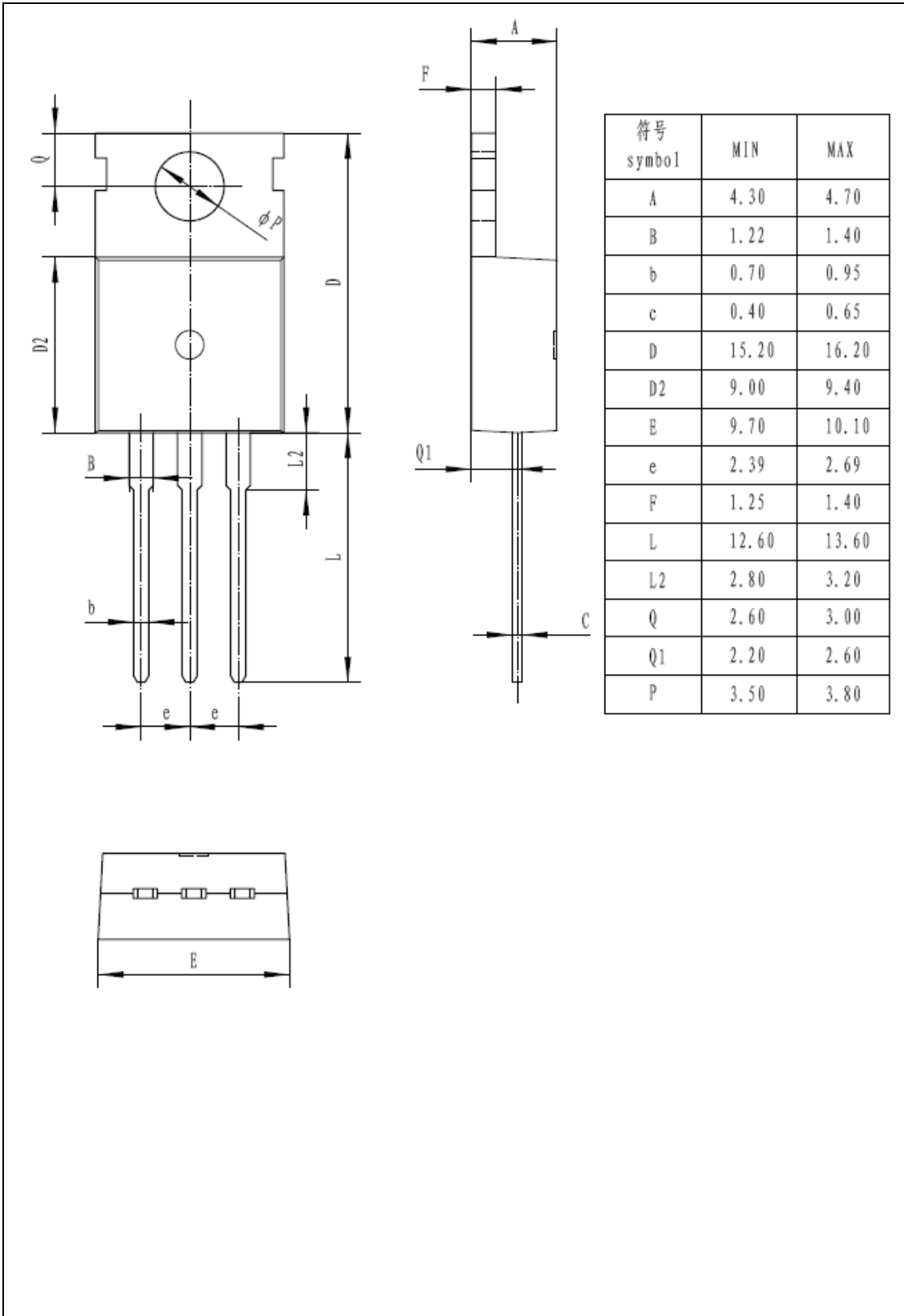




外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit : mm

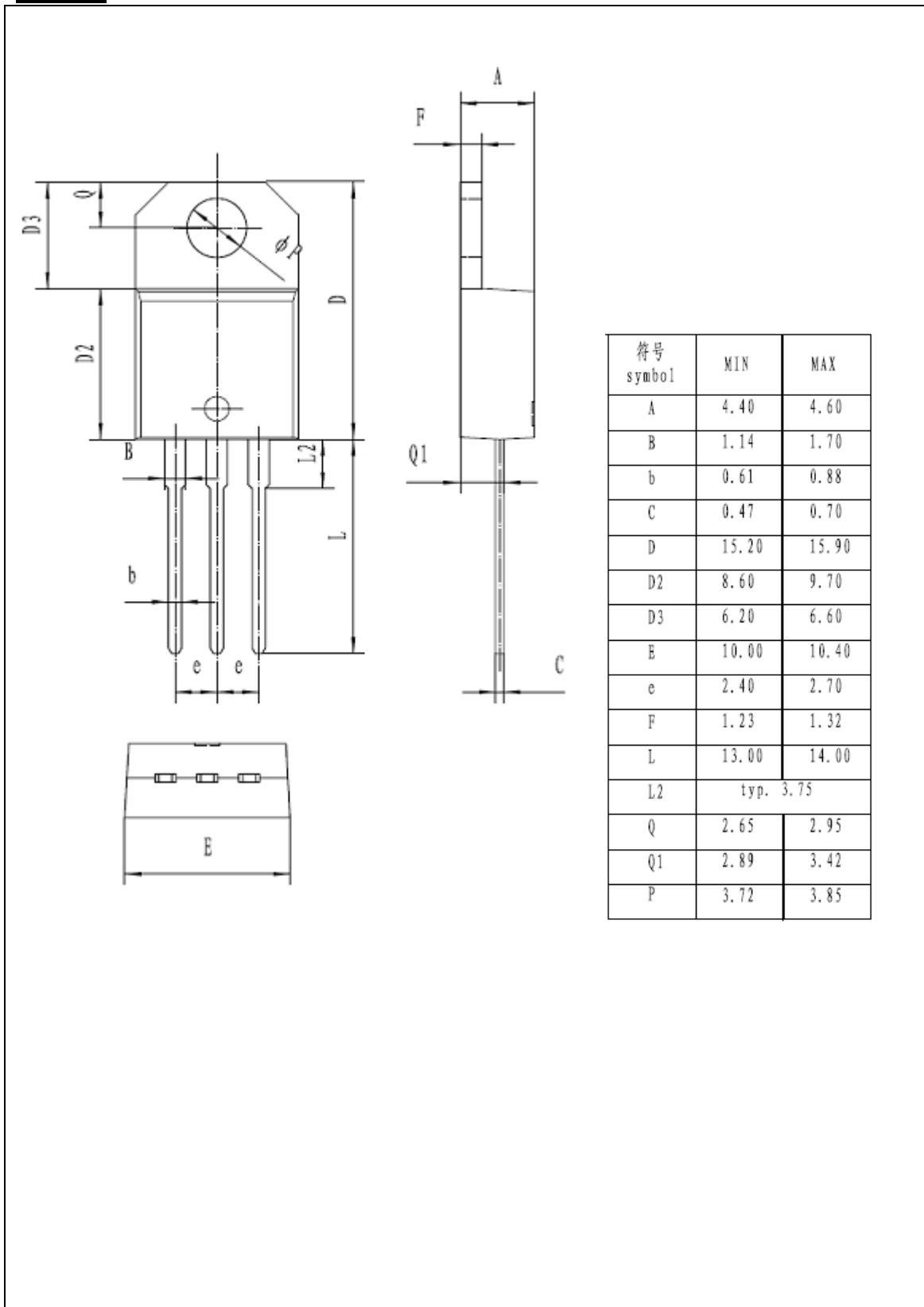




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220S

单位 Unit : mm

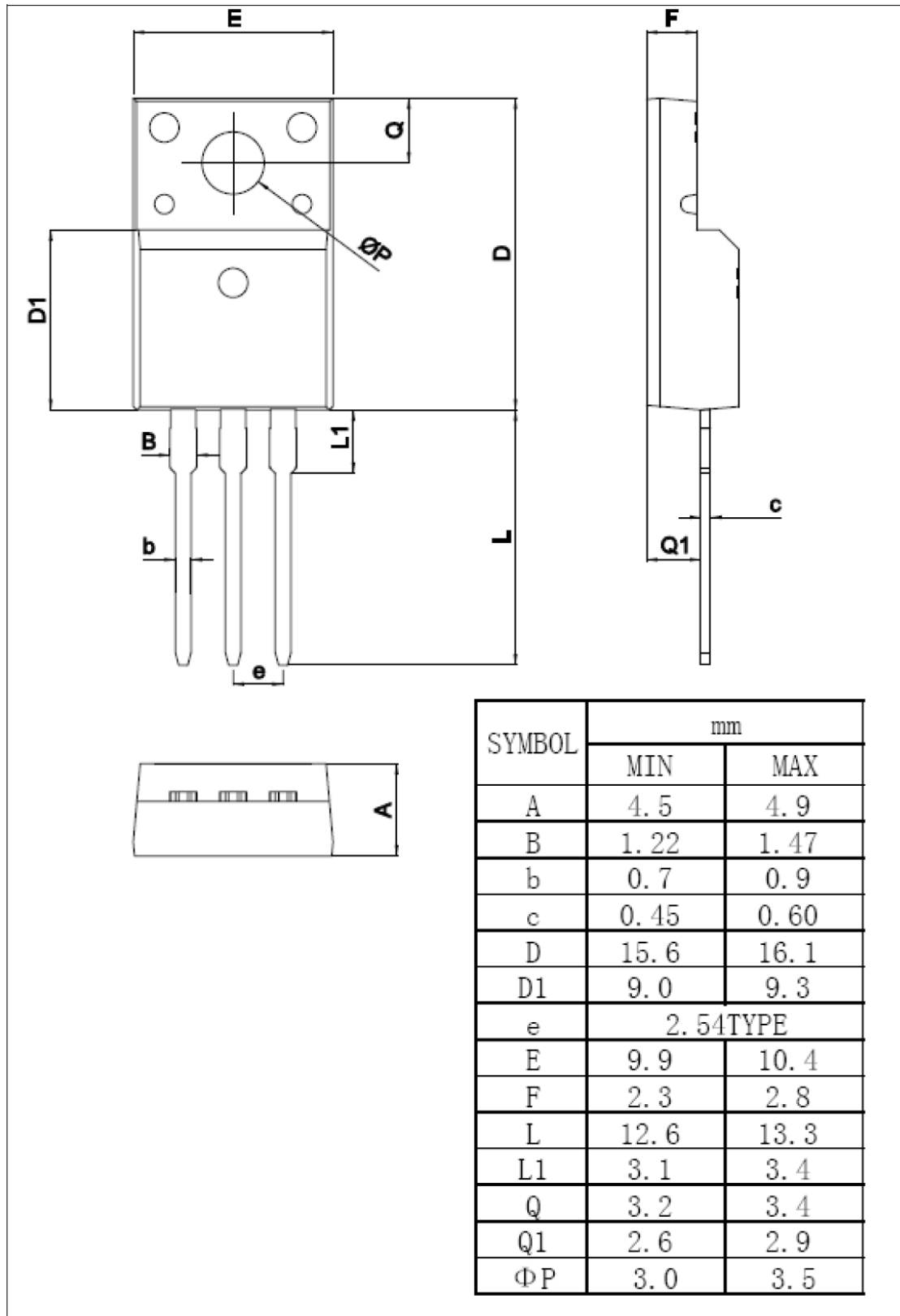




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220MF-K1

单位 Unit : mm

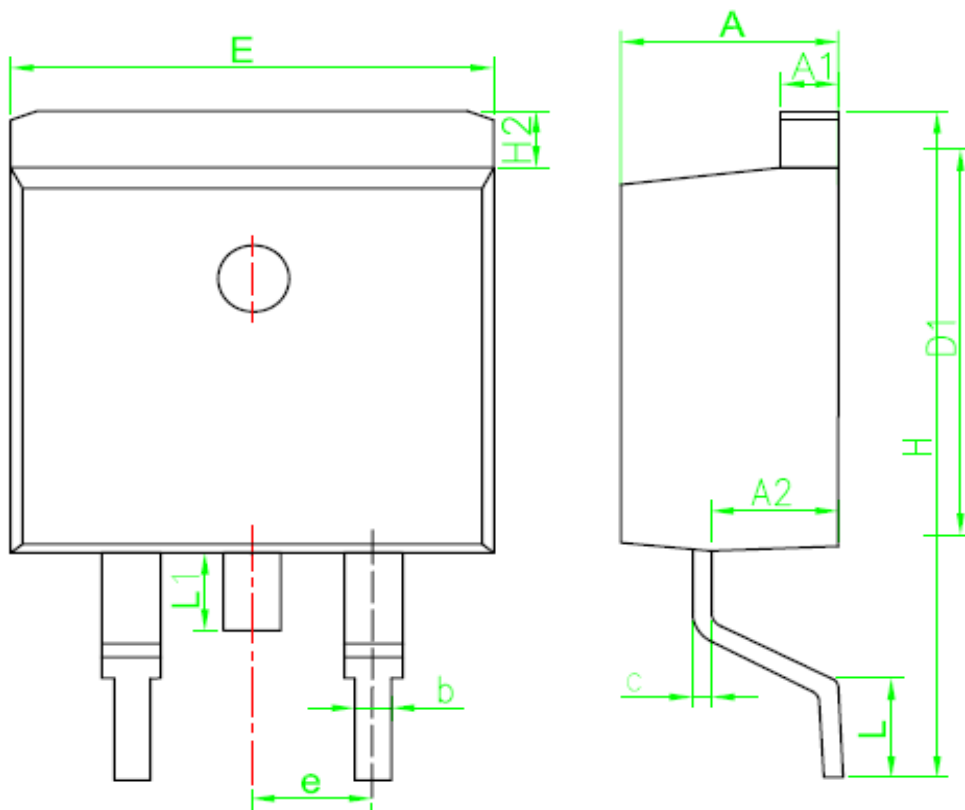




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-263

单位 Unit : mm



SYMBOL	MM	
	MIN	MAX
A	4.30	4.80
A1	1.12	1.42
A2	2.54	2.84
b	0.67	1.00
c	0.29	0.52
D1	8.40	9.00
E	9.80	10.46
e	2.54BSC	
H	14.00	16.00
H2	1.12	1.45
L	1.50	3.10
L1	1.45	1.70





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