



# 3TT12Z/C/S/J/F/F1

## 主要参数 MAIN CHARACTERISTICS

$I_T(RMS)$	12A
$V_{DRM}$	800V
$I_{GT}$	35mA

## 用途

- 交流开关
- 相位控制

## APPLICATIONS

- AC switching
- Phase control

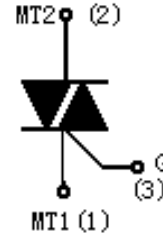
## 产品特性

- 玻璃钝化芯片，高可靠性和一致性
- 三象限可控硅，触发电流的一致性好
- 环保 RoHS 产品

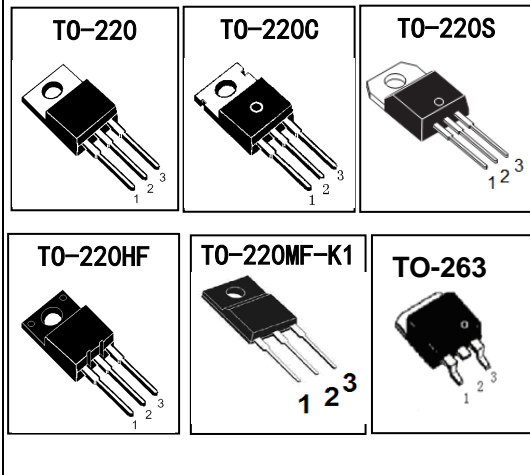
## FEATURES

- Glass-passivated mesa chip for reliability and uniform
- Uniform gate trigger currents in three quadrants
- RoHS products

## 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	无卤-条管	有卤-袋装	无卤-袋装		
Halogen-Tube	Halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
3TT12Z-CA-B	3TT12Z-CA-BR	3TT12Z-CA-C	3TT12Z-CA-CR	3TT12Z	T0-220
3TT12C-C-B	3TT12C-C-BR	3TT12C-C-C	3TT12C-C-CR	3TT12C	T0-220C
3TT12J-CB-B	3TT12J-CB-BR	3TT12J-CB-C	3TT12J-CB-CR	3TT12J	T0-220S
3TT12F-FA-B	3TT12F-FA-BR	3TT12F-FA-C	3TT12F-FA-CR	3TT12F	T0-220HF
3TT12F1-F1-B	3TT12F1-F1-BR	3TT12F1-F1-C	3TT12F1-F1-CR	3TT12F1	T0-220MF-K1
有卤-条管	无卤-条管	有卤-编带	无卤-编带	3TT12S	T0-263
Halogen-Tube	Halogen-Free-Tube	Halogen-Reel	Halogen-Free-Reel		
3TT12S-S-B	3TT12S-S-BR	3TT12S-S-A	3TT12S-S-AR		



## 概述 GENERAL DESCRIPTION

3TT12Z/C/S/J/F/F1是玻璃钝化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-220、TO-220C、TO-263、TO-220S（引线与散热片绝缘）、TO-220HF（塑料全包封）、TO-220MF-K1（塑料全包封）。

3TT12Z/C/S/J/F/F1 are Glass passivated 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-220、TO-220C、TO-263、TO-220S (internally isolated) 、TO-220HF (plastic envelope) and TO-220MF-K1(plastic envelope).



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	12	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	150	A
		full sine wave ,t=16.7ms	161	A
	I <sup>2</sup> t	t=10ms	112.5	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> =20A, 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>		125	℃

项 目 Parameter	符 号 Symbol	最大 Max	单 位 Unit
抗静电能力 Electro-Static discharge	ESD	10	KV
湿度敏感等级 Moisture Sensity levels	MSL	2	级

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>DRM</sub> =800V, T <sub>j</sub> =125°C, gate open		-	-	0.8	mA
峰值通态电压 Peak on-state voltage	V <sub>TM</sub>	I <sub>TM</sub> =17A		-	1.3	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	-	35	mA
			MT1(-),MT2(+),G(-)	2	-	35	mA
			MT1(+),MT2(-),G(-)	2	-	35	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		-	-	35	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(+)	-	-	50	mA
			MT1(-),MT2(+),G(-)	-	-	60	mA
			MT1(+),MT2(-),G(-)	-	-	50	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> =125°C, gate open		1000	-	-	V/μs
门极开通时间 Gate controlled turn-on time	tgt	I <sub>TM</sub> =16A, 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

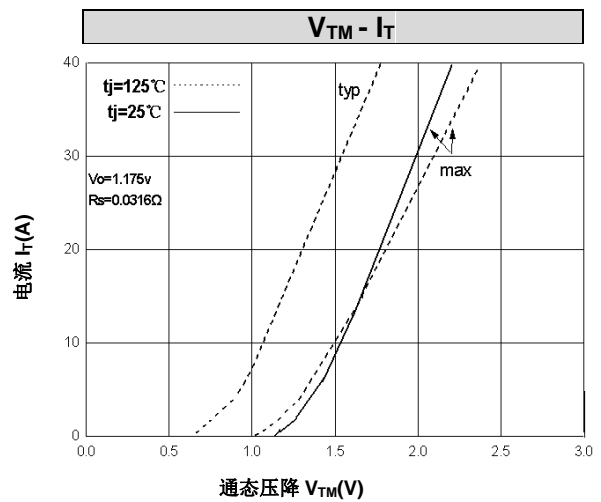
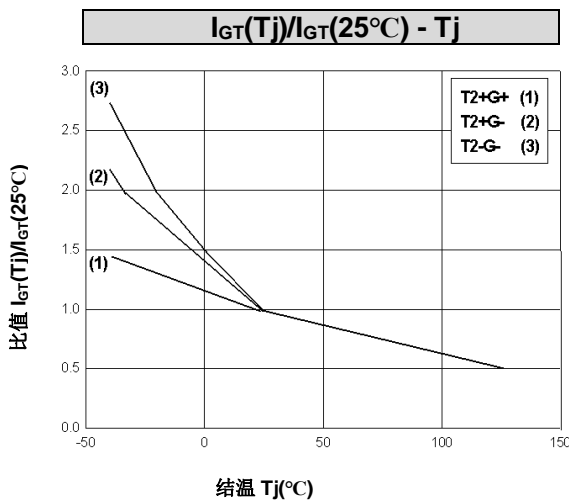
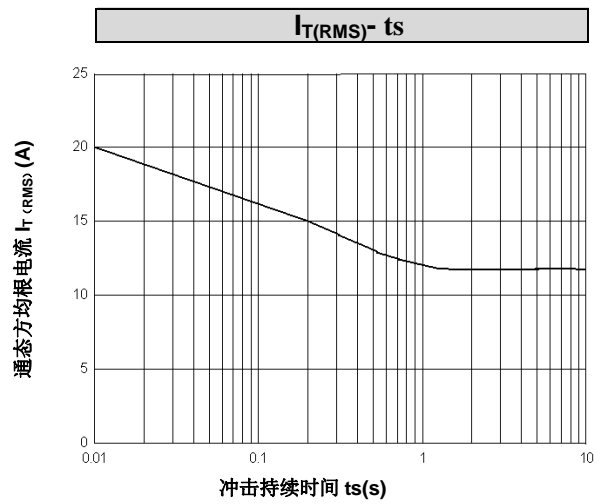
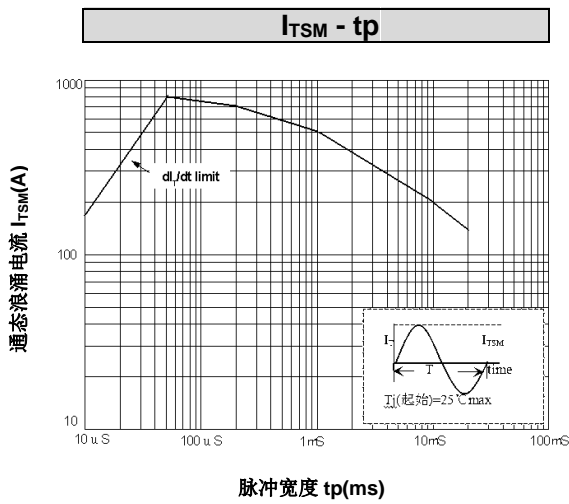
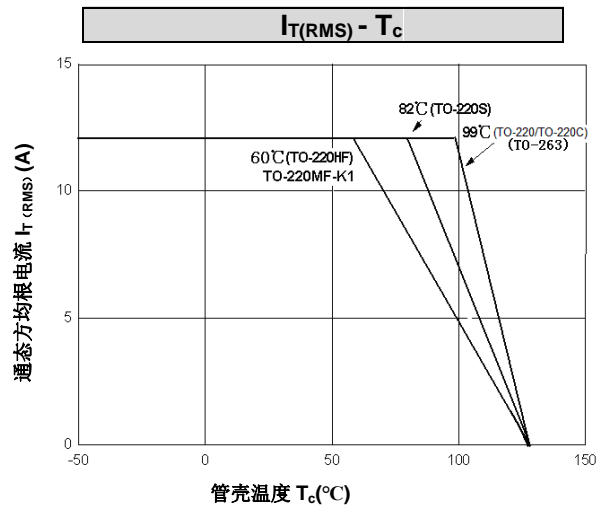
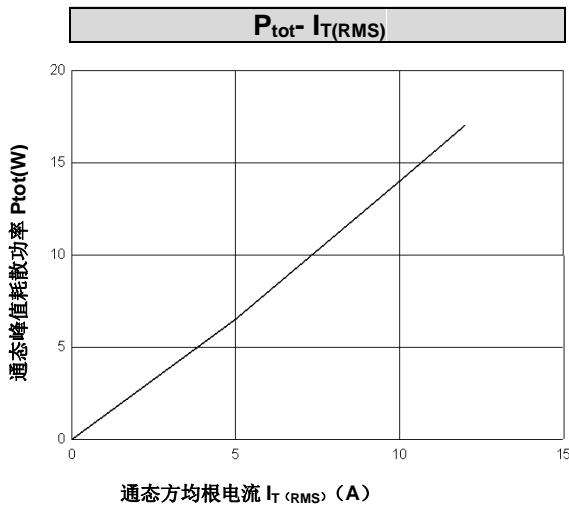
项 目 Parameter	符 号 Symbol	条 件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit
结到管壳的热阻 Thermal resistance junction to case	R <sub>th(j-c)</sub>	full cycle(TO-220/TO-220C/TO-263)			1.5	°C/W
		full cycle(TO-220S)			2.4	°C/W
		full cycle(TO-220HF/TO-220MF-K1)			4.0	°C/W

## 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	2000	V
		1 minute, leads to mounting tab TO-220HF/TO-220MF-K1	2000	V

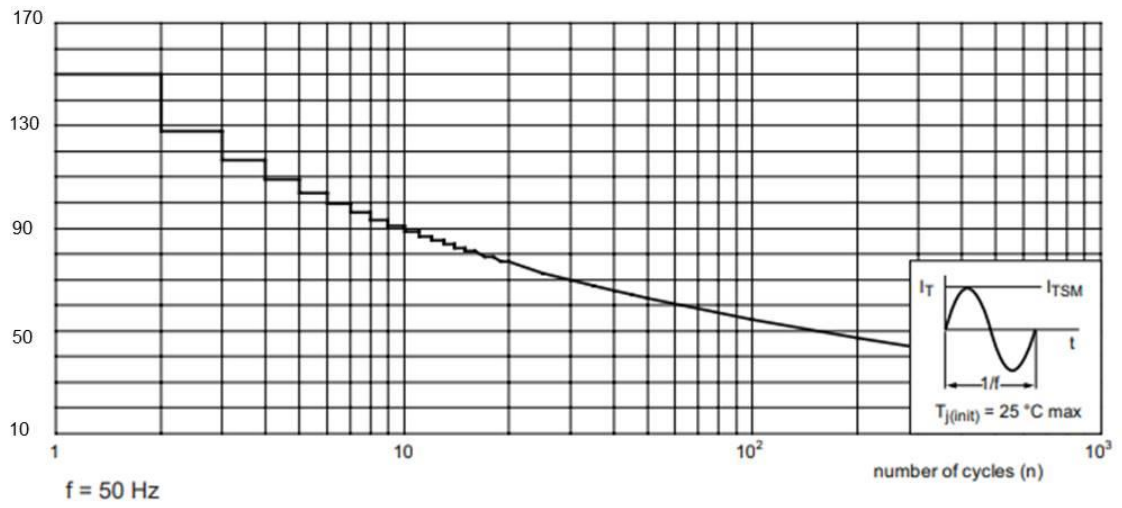


特征曲线 ELECTRICAL CHARACTERISTICS (curves)





ITSM(A) / number of cycles (n)

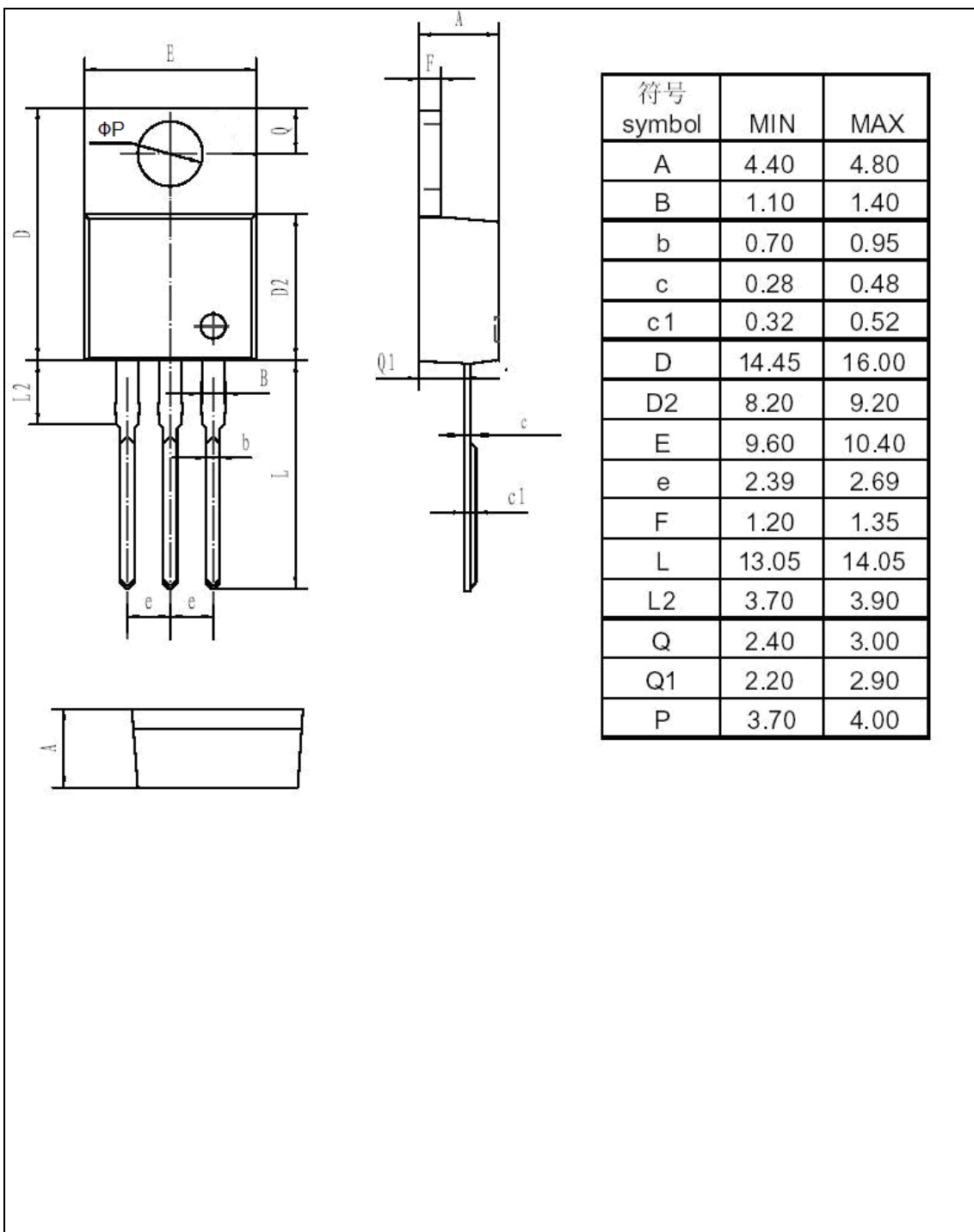




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220

单位 Unit : mm

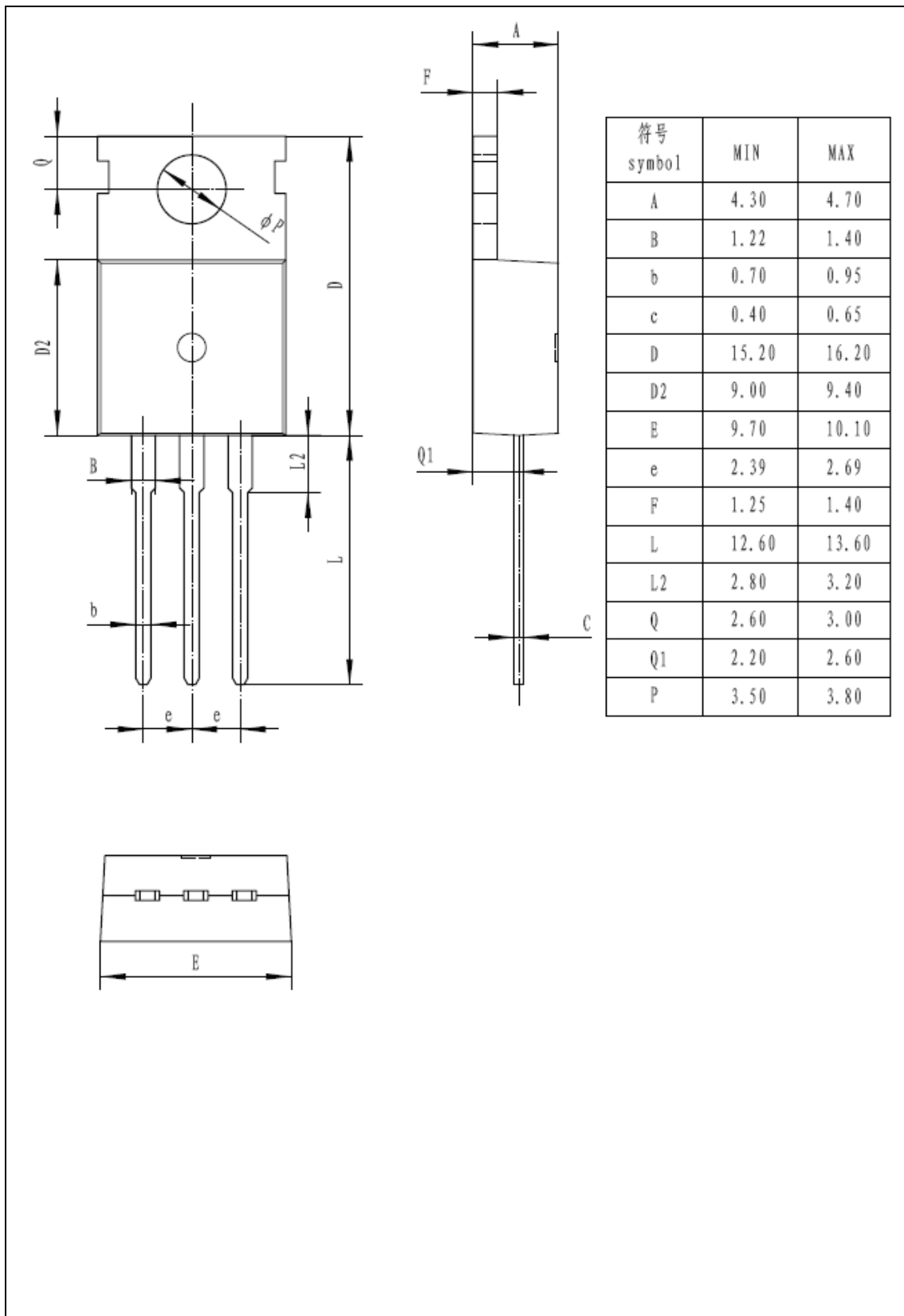




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit : mm



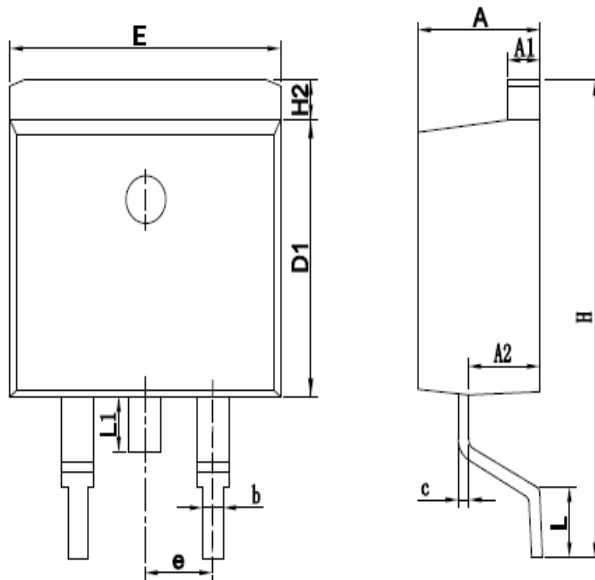




## 外形尺寸 PACKAGE MECHANICAL DATA

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

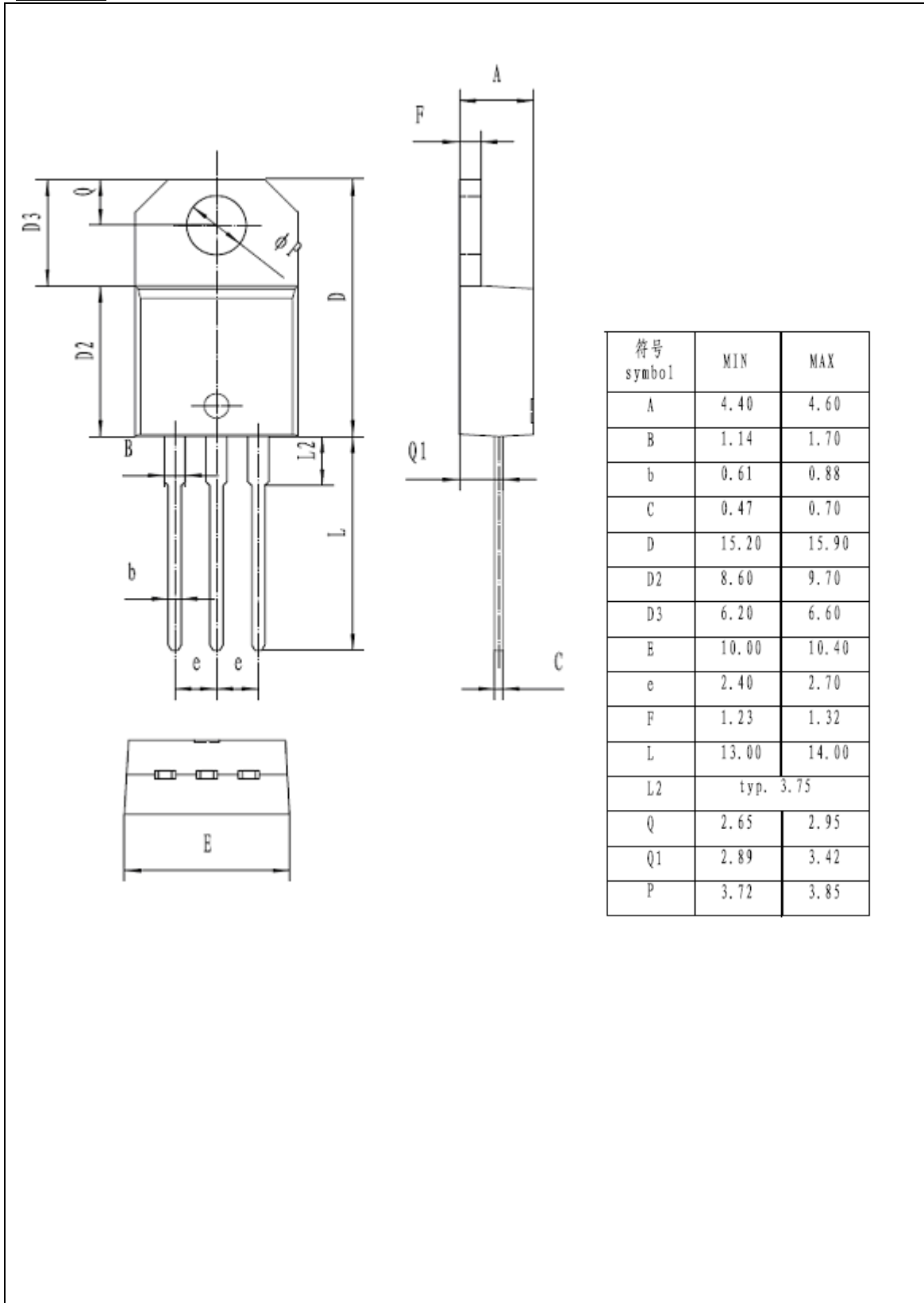
单位: mm



外形尺寸 PACKAGE MECHANICAL DATA

TO-220S

单位 Unit : mm

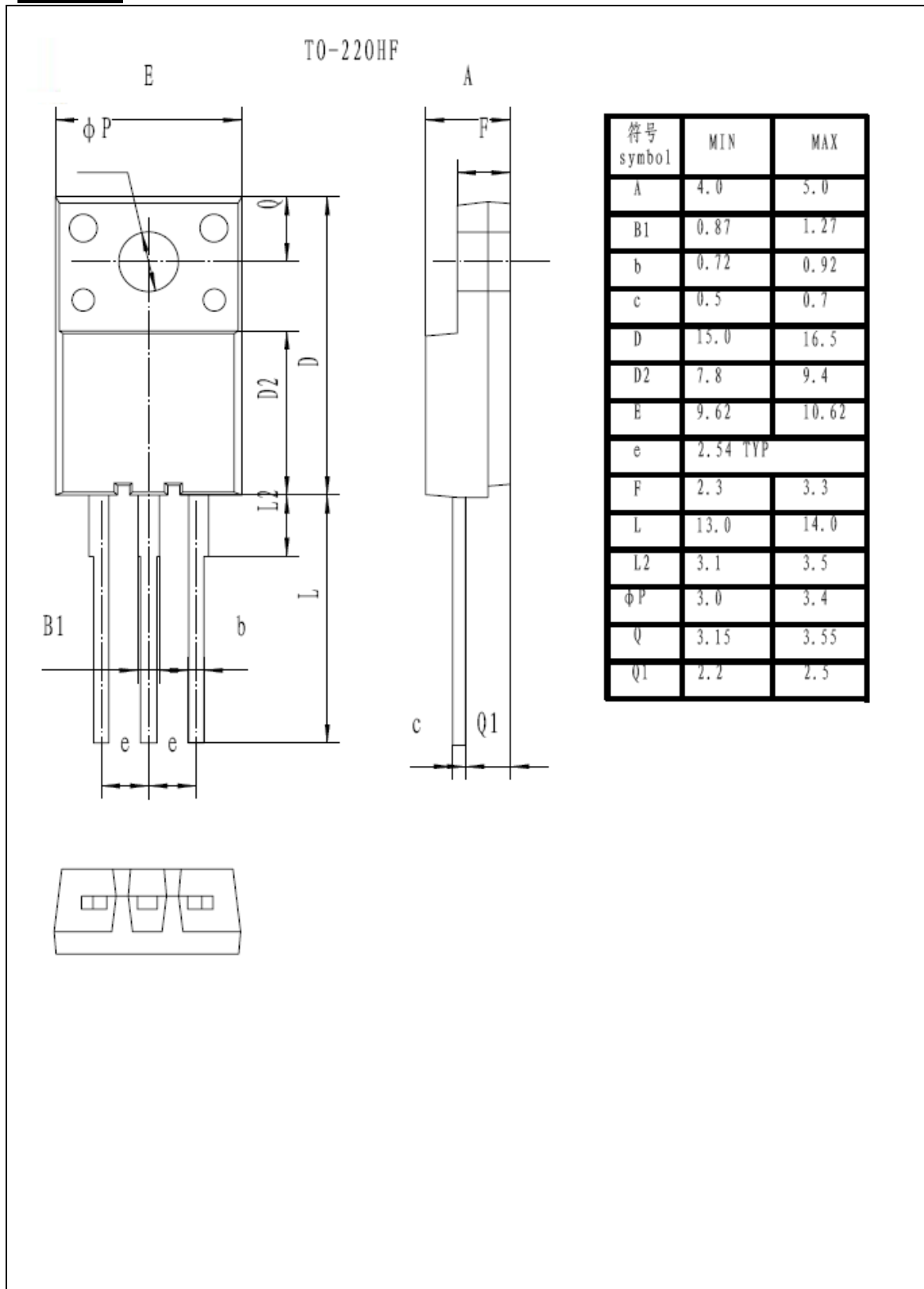




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220HF

单位 Unit : mm

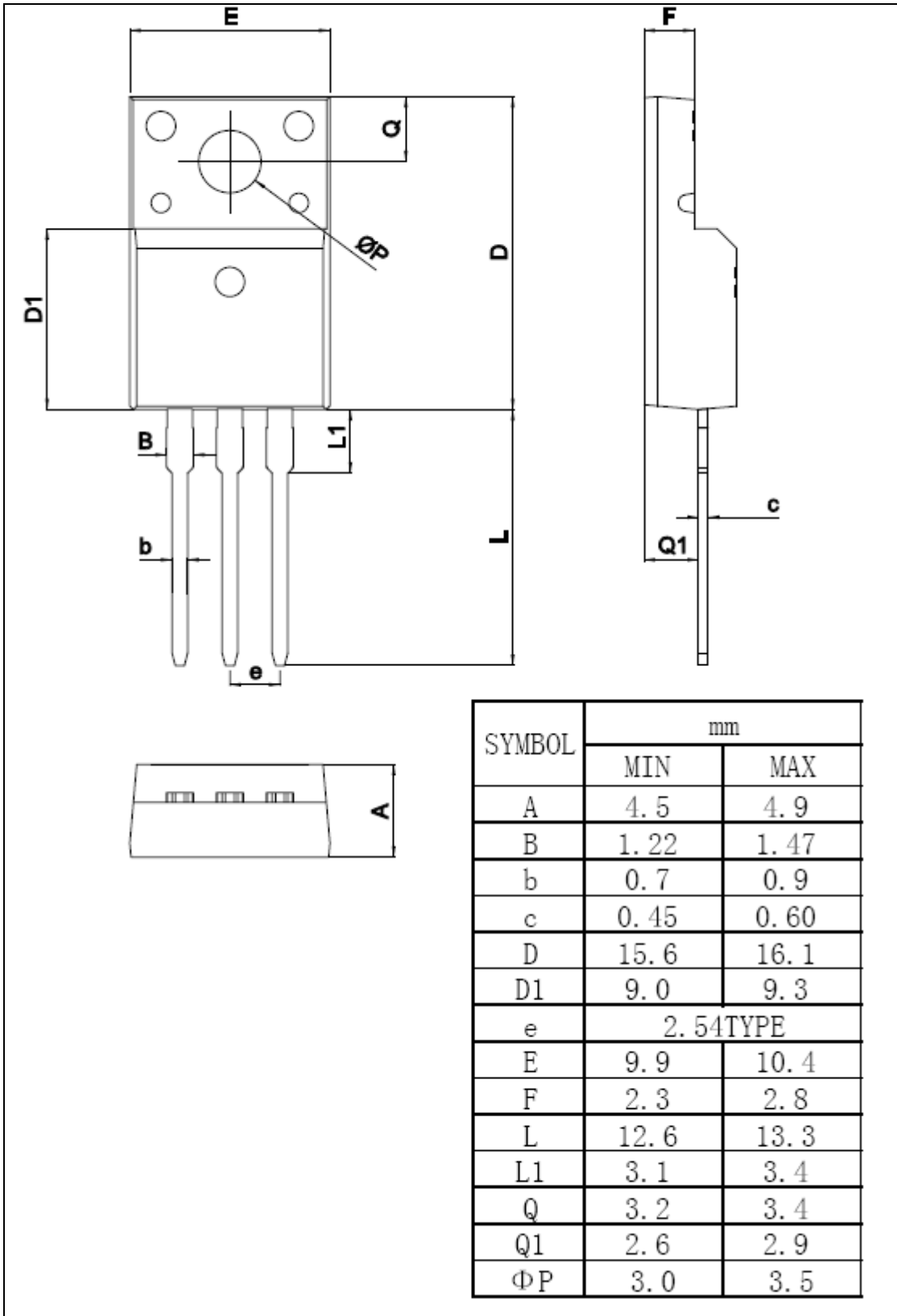




## 外形尺寸 PACKAGE MECHANICAL DATA

TO-220MF-K1

单位 Unit : mm





### 注意事项

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