

3CT25S

主要参数 MAIN CHARACTERISTICS

$I_{T(RMS)}$	25A
V_{DRM}	600V or 800V
I_{GT}	35mA

用途

- 交流开关
- 相位控制

APPLICATIONS

- AC switching
- Phase control

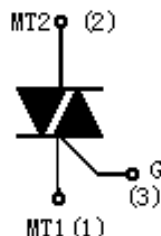
产品特性

- 平面钝化芯片高可靠性、一致性
- 三象限可控硅，触发电流的一致性好
- 环保 RoHS 产品
- 通过 UL 认证：E258645

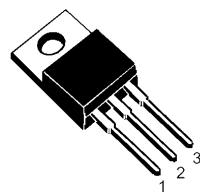
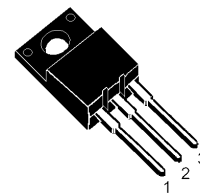
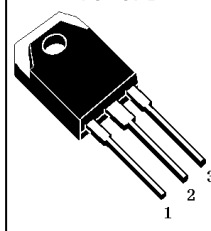
FEATURES

- Planar chip for reliability and uniform
- Uniform gate trigger currents in three quadrants
- RoHS products
- UL: E258645

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

TO-220/T0-220S**TO-220HF****TO-3PB**

订货信息 ORDER MESSAGES

订货型号 Order code	印记 Marking	封装 Package	包装 Packaging
3CT25S-O-Z-N-C	3CT25S	TO-220	袋装 Bag
3CT25S-O-J-N-B	3CT25S	TO-220S	条管 Tube
3CT25S-O-HF-N-B	3CT25S	TO-220HF	条管 Tube
3CT25S-O-AB-N-B	3CT25S	TO-3PB	条管 Tube

概述 GENERAL DESCRIPTION

3CT25S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-220、TO-220S（引线与散热片绝缘）、TO-220HF（塑料全包封）、TO-3PB。

3CT25S 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-220、TO-220S (internally isolated) 、TO-220HF (plastic envelope) and TO-3PB.

绝对最大额定值 ABSOLUTE RATINGS ($T_c=25^{\circ}\text{C}$)

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_{DRM}		± 600 ± 800	V
通态方均根电流 On-state RMS current	$I_{\text{T(RMS)}}$	full sine wave,	25	A
非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current	I_{TSM}	full sine wave ,t=20ms	190	A
		full sine wave ,t=16.7ms	209	A
	I^2t	t=10ms	180	A^2s
通态电流临界上升率 Repetitive rate of rise of on-state current after triggering	di/dt	$I_{\text{TM}}=30\text{A}$, $I_{\text{G}}=0.2\text{A}$, $di_{\text{G}}/dt=0.2\text{A}/\mu\text{s}$	100	$\text{A}/\mu\text{s}$
峰值门极电流 Peak gate current	I_{GM}		2	A
峰值门极电压 Peak gate voltage	V_{GM}		5	V
峰值门极功率 Peak gate power	P_{GM}		5	W
平均门极功率 Average gate power	$P_{\text{G(AV)}}$	over any 20ms period	0.5	W
存储温度 Storage temperature	T_{stg}		-40~150	$^{\circ}\text{C}$
操作结温 Operation junction temperature	T_{VJ}		125	$^{\circ}\text{C}$



电特性 ELECTRICAL CHARACTERISTIC ($T_c=25^{\circ}\text{C}$)

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_{DRM}	$V_{\text{DM}}=V_{\text{DRM}}$, $T_j=25^{\circ}\text{C}$, gate open	-	-	10	μA
		$V_{\text{DM}}=V_{\text{DRM}}$, $T_j=125^{\circ}\text{C}$, gate open	-	-	3.0	mA
峰值通态电压 Peak on-state voltage	V_{TM}	$I_{\text{TM}}=30\text{A}$	-	-	1.7	V
门极触发电流 Gate trigger current	I_{GT}	$V_{\text{DM}}=12\text{V}$, $R_{\text{L}}=100\ \Omega$, 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_{GT}	$V_{\text{DM}}=12\text{V}$, $R_{\text{L}}=100\ \Omega$, 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_{H}	$V_{\text{DM}}=12\text{V}$, $I_{\text{GT}}=0.1\text{A}$	-	-	60	mA
擎住电流 Latching current	I_{L}	$V_{\text{DM}}=12\text{V}$, $I_{\text{GT}}=0.1\text{A}$, MT1(-),MT2(+),G(+)	-	-	60	mA
		MT1(-),MT2(+),G(-)	-	-	90	mA
		MT1(+),MT2(-),G(-)	-	-	60	mA
断态临界电压上升率 Rise of off- state voltage	dV/dt	$V_{\text{DM}}=67\% V_{\text{DRM(MAX)}}$, $T_j=125^{\circ}\text{C}$, gate open	1000	-	-	$\text{V}/\mu\text{s}$
门极开通时间 Gate controlled turn-on time	t_{gt}	$I_{\text{TM}}=30\text{A}$, $V_{\text{DM}}=V_{\text{DRM(MAX)}}$, $I_{\text{G}}=0.1\text{A}$, $dI_{\text{G}}/dt=5\text{A}/\mu\text{S}$	-	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	$R_{\text{th(j-c)}}$	full cycle(TO-220)			1.0	$^{\circ}\text{C}/\text{W}$
		full cycle(TO-220S)			2.0	$^{\circ}\text{C}/\text{W}$
		full cycle(TO-220HF)			3.2	$^{\circ}\text{C}/\text{W}$
		full cycle(TO-3PB)			0.6	$^{\circ}\text{C}/\text{W}$

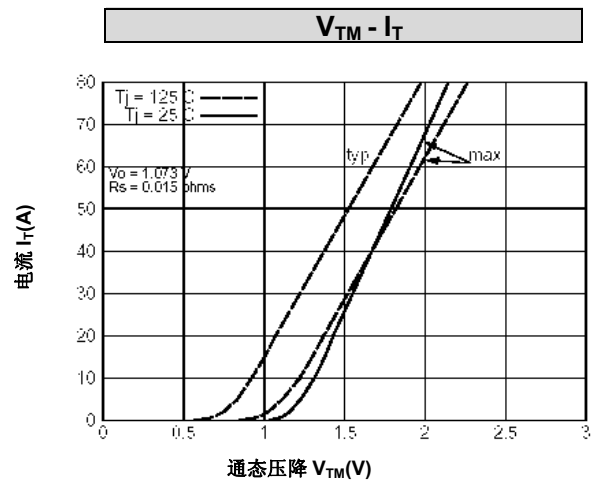
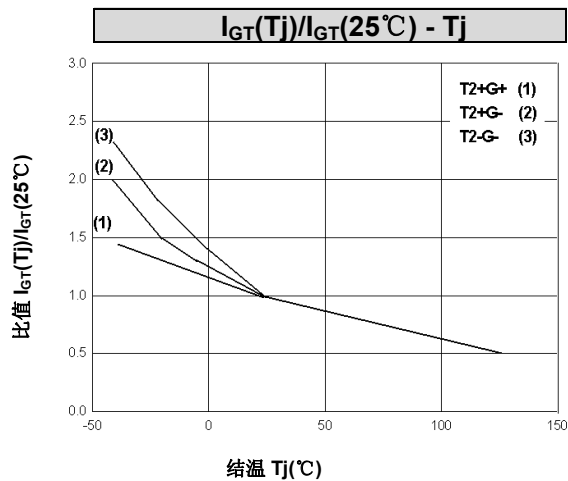
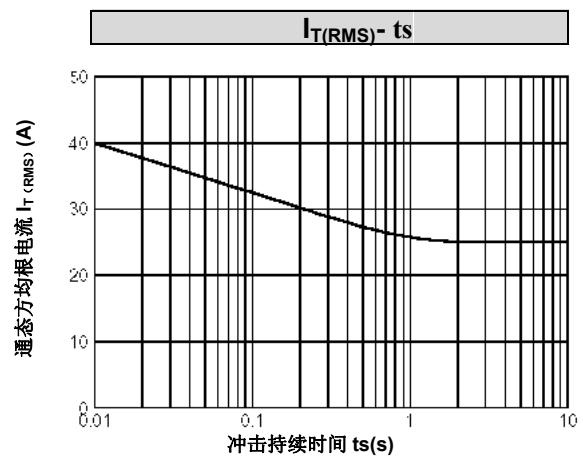
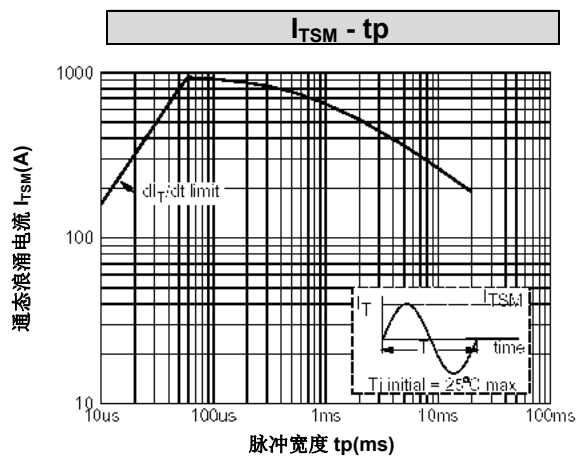
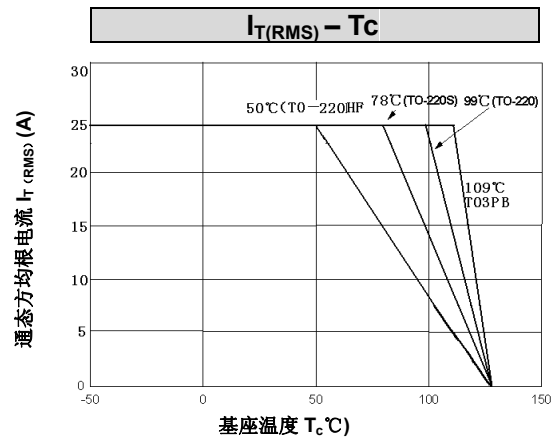
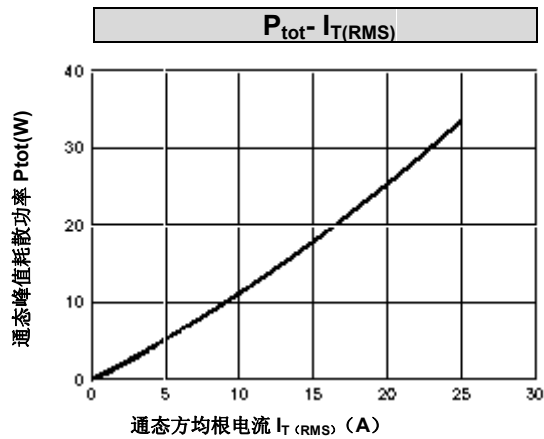
电绝缘特性 ELECTRICAL ISOLATION

项 目 Parameter	符 号 Symbol	条 件 Condition	数 值 Value	单位 Unit
绝缘电压 Isolation voltage	V_{ISOL}	1 minute, leads to mounting tab TO-220S	2000	V
		1 minute, leads to mounting tab TO-220HF	2000	V



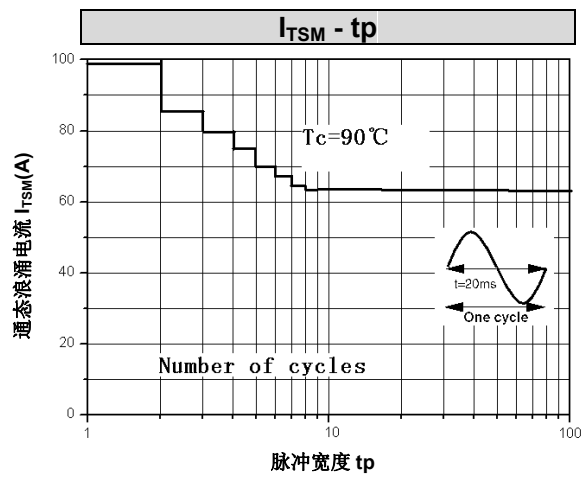


特征曲线 ELECTRICAL CHARACTERISTICS (curves)





特征曲线 ELECTRICAL CHARACTERISTICS (curves)

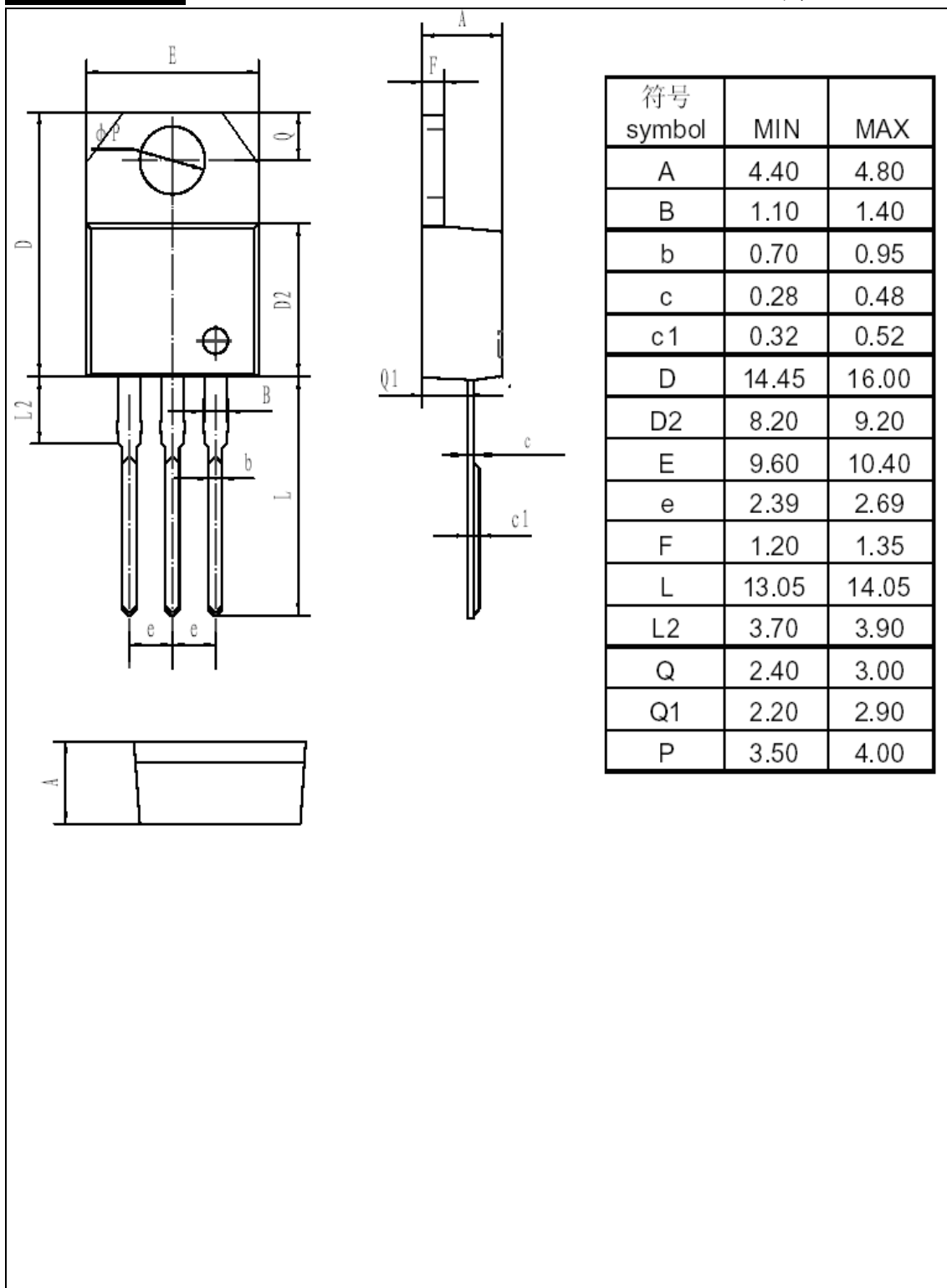




外形尺寸 PACKAGE MECHANICAL DATA

TO-220/TO-220S

单位 Unit : mm



注：根据客户要求 TO-220S 产品散热片顶端可以为斜角

Note: For customer requirements, the top of TO-220S mounting base can be formed as angle.

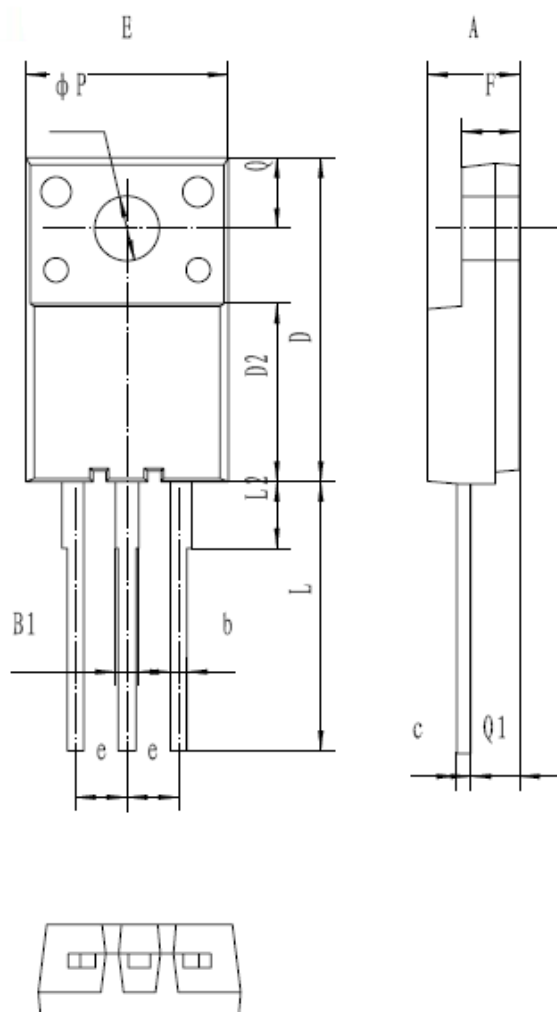




外形尺寸 PACKAGE MECHANICAL DATA

TO-220HF

单位 Unit : mm



符号 symbol	MIN	MAX
A	4.0	5.0
B1	0.87	1.27
b	0.72	0.92
c	0.5	0.7
D	15.0	16.5
D2	7.8	9.4
E	9.62	10.62
e	2.54 TYP	
F	2.3	3.3
L	13.0	14.0
L2	3.1	3.5
ϕP	3.0	3.4
Q	3.15	3.55
Q1	2.2	2.5

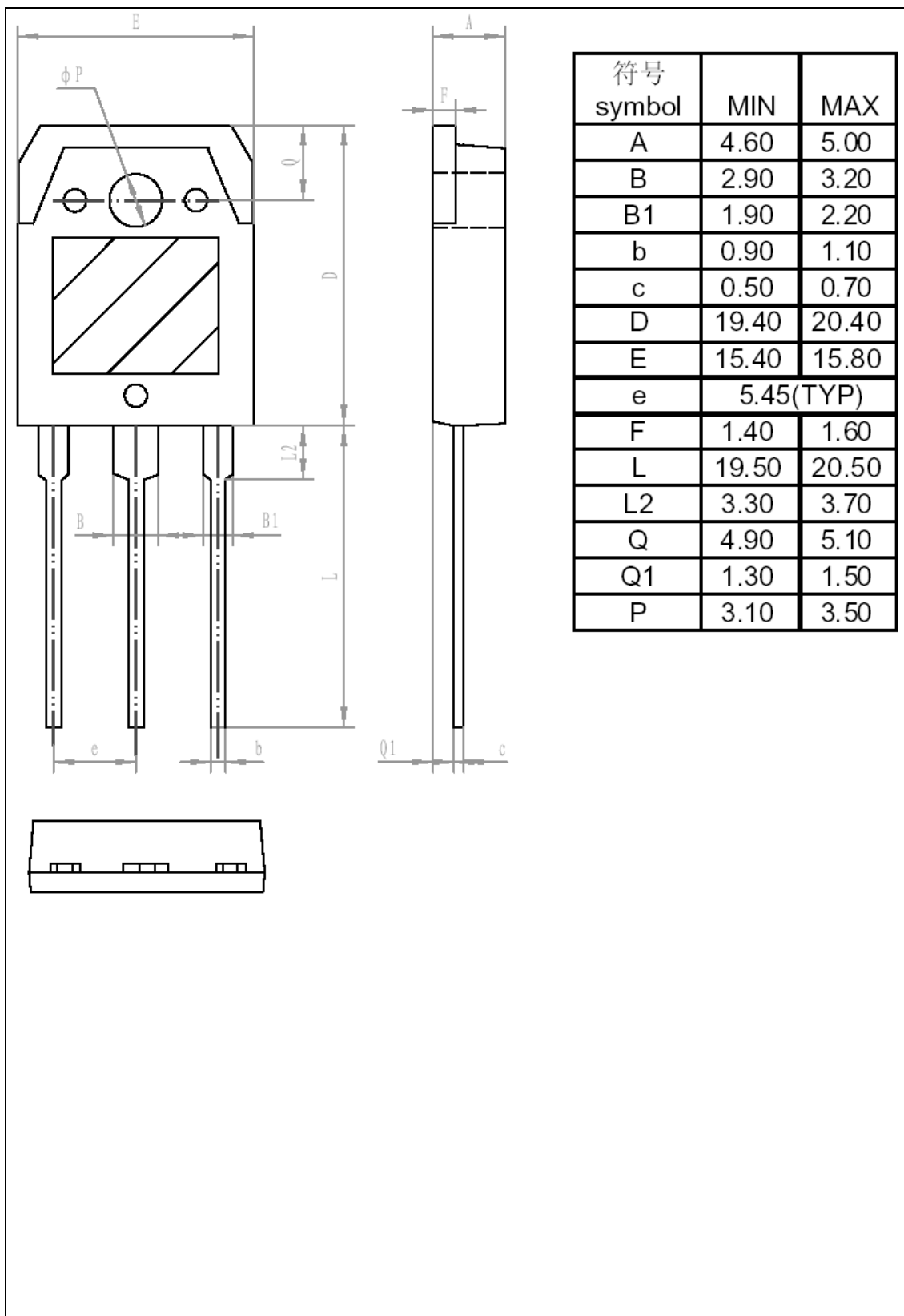




外形尺寸 PACKAGE MECHANICAL DATA

TO-3PB

单位 Unit : mm



**注意事项**

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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

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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.

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附录（Appendix）：修订记录（Revision History）

日期 Date	旧版本 Last Rev.	新版本 New Rev.	修订内容 Description of Changes
2009-5-15	200902F	200905G	中英文格式改版
2009-11-3	200905G	200911H	修改电话号码
2010-8-11	200911H	201008I	增加高温 ITSM 曲线
2015-10-22	201008I	201510J	修改热阻参数

