3TT16Z/C/J/F/A/F1/S

主要参数 MAIN CHARACTERISTICS

$I_{T(RMS)}$	16A
V_{DRM}	800V
I_{GT}	35mA

用途 APPLICATIONS

- 交流开关
- 相位控制

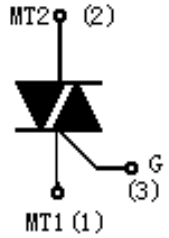
- AC switching
- Phase control

产品特性 FEATURES

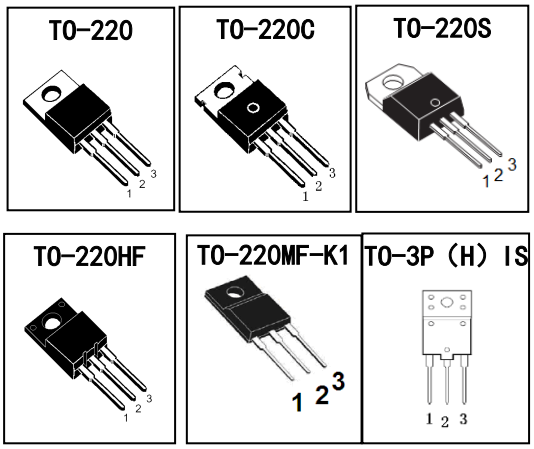
- 玻璃钝化芯片，高可靠性和一致性
- 三象限可控硅，触发电流的一致性好
- 环保 RoHS 产品

- 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 Halogen-Tube	无卤-条管 Halogen-Free-Tube	有卤-袋装 Halogen-Bag	无卤-袋装 Halogen-Free-Bag		
3TT16Z-CA-B	3TT16Z-CA-BR	3TT16Z-CA-C	3TT16Z-CA-CR	3TT16Z	TO-220
3TT16C-C-B	3TT16C-C-BR	3TT16C-C-C	3TT16C-C-CR	3TT16C	TO-220C
3TT16J-CB-B	3TT16J-CB-BR	3TT16J-CB-C	3TT16J-CB-CR	3TT16J	TO-220S
3TT16F1-F1-B	3TT16F1-F1-BR	3TT16F1-F1-C	3TT16F1-F1-CR	3TT16F1	TO-220MF-K1
3TT16A-GA-B	3TT16A-GA-BR	N/A	N/A	3TT16A	TO-3P(H)IS
3TT16S-S-B	3TT16S-S-BR	3TT16S-S-C	3TT16S-S-CR	3TT16S	TO-263

概述 GENERAL DESCRIPTION

3TT16Z/C/J/A /F1/S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-220S(引线与散热片绝缘)、TO-263、TO-3P（H）IS（塑料全包封）、TO-220MF-K1（塑料全包封）。

3TT16Z/C/J/A/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-220S (internally isolated)、TO-263、TO-3P（H）IS (plastic envelope)、TO-220MF-K1 (plastic envelope).

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
重复峰值断态电压 Repetitive peak off-state voltage	V_{DRM}		±800	V
通态方均根电流 On-state RMS current	$I_{T(RMS)}$	full sine wave,	16	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	150	A
		full sine wave ,t=16.7ms	161	A
	I^2t	t=10ms	112.5	A^2s
通态电流临界上升率 Repetitive rate of rise of on-state current after triggering	dI/dt	I_{TM}=20A, I_G=0.2A, dI_G/dt=0.2A/μs	100	A/μs
峰值门极电流 Peak gate current	I_{GM}		4	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	$P_{G(AV)}$	over any 20ms period	0.5	W
存储温度 Storage temperature	T_{stg}		-40~150	℃
操作结温 Operation junction temperature	T_{VJ}		125	℃

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
峰值重复断态电流 Peak Repetitive Blocking Current	I_{DRM}	V_{DRM}=800V, Tj=125℃, gate open		-	-	1.0	mA
峰值通态电压 Peak on-state voltage	V_{TM}	I_{TM}=20A		-	1.4	1.7	V
门极触发电流 Gate trigger current	I_{GT}	V_{DM}=12V, R_L=100Ω	MT1(-),MT2(+),G(+)	-	-	35	mA
			MT1(-),MT2(+),G(-)	-	-	35	mA
			MT1(+),MT2(-),G(-)	-	-	35	mA
门极触发电压 Gate trigger voltage	V_{GT}	V_{DM}=12V, R_L=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_H	V_{DM}=12V, I_{GT}=0.1A		-	-	35	mA
擎住电流 Latching current	I_L	V_{DM}=12V, I_{GT}=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_{DM}=67% $V_{DRM(MAX)}$, Tj=125℃, gate open		1000	-	-	V/μs
门极开通时间 Gate controlled turn-on time	tgt	I_{TM}=20A, V_{DM}=$V_{DRM(MAX)}$, I_G=0.1A, dI_G/dt=5A/μS		-	2	-	μs

热特性 THERMAL CHARACTERISTIC

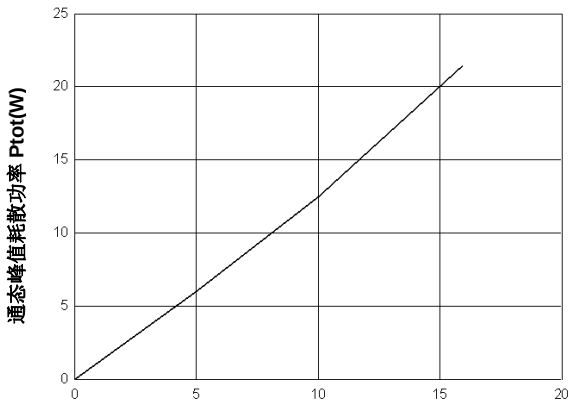
项　　目 Parameter	符　号 Symbol	条　　件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit
结到管壳的热阻 Thermal resistance junction to case	$R_{th(j-c)}$	full cycle(TO-220/TO-220C/TO-263)			1.2	℃/W
		full cycle(TO-220S)/ TO-3P（H）IS			2.2	℃/W
		full cycle(TO-220MF-K1)			3.6	℃/W

电绝缘特性 ELECTRICAL ISOLATION

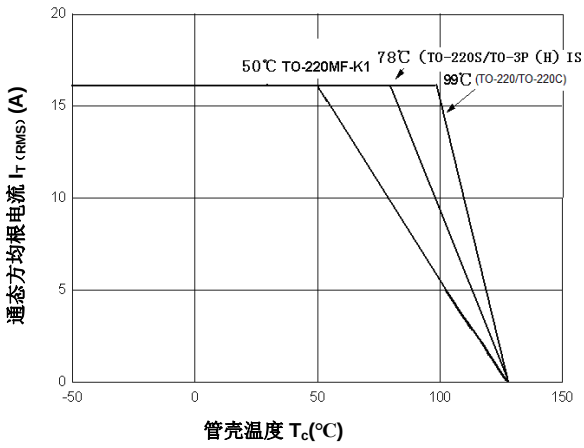
项　　目 Parameter	符　号 Symbol	条　　件 Condition	数 值 Value	单位 Unit
绝缘电压 Isolation voltage	V_{ISOL}	1 minute, leads to mounting tab TO-220S	2000	V
		1 minute, leads to mounting tab TO-220HF/TO-220MF-K1/ TO-3P（H）IS	2000	V

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

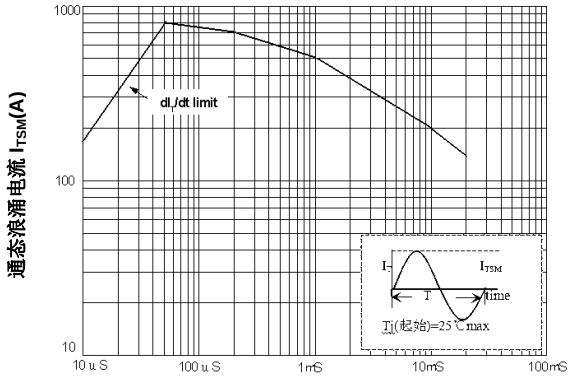
P_{tot}- $I_{T(RMS)}$



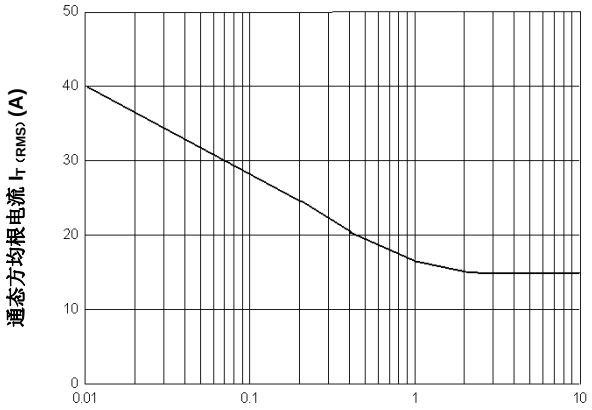
$I_{T(RMS)}$ – T_c



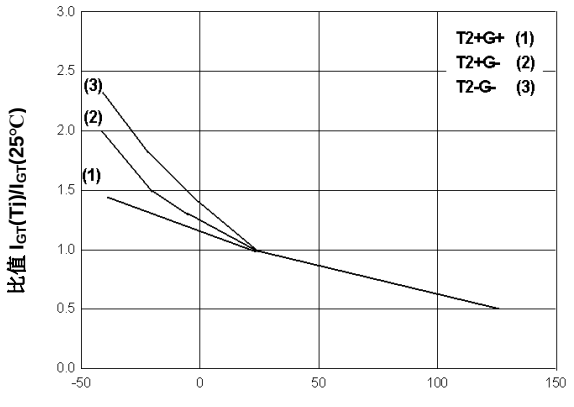
I_{TSM} – tp



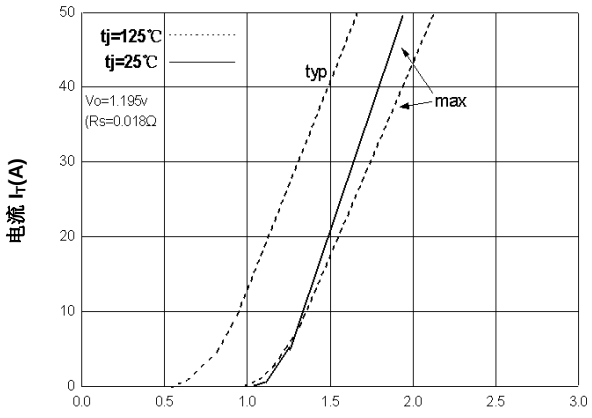
$I_{T(RMS)}$- ts



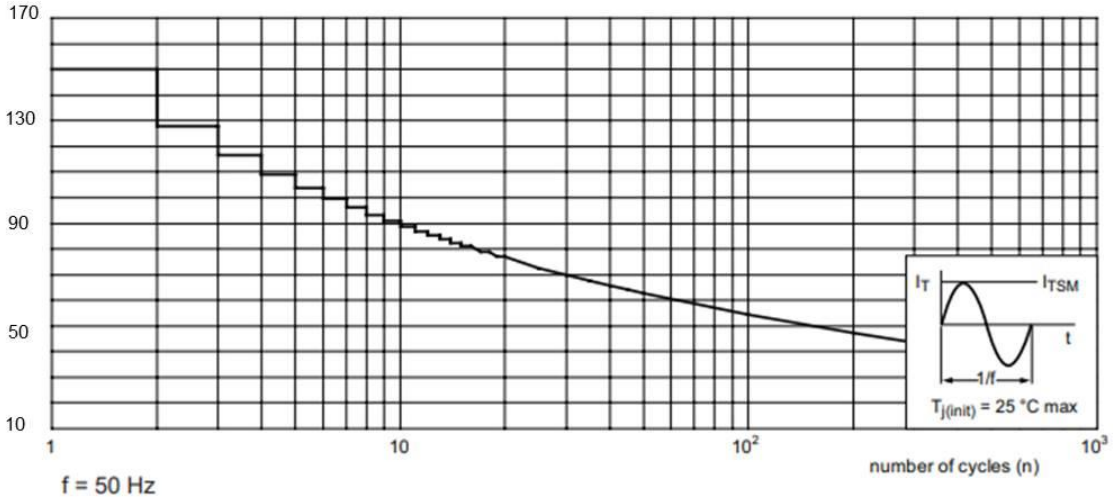
$I_{GT}(Tj)/I_{GT}(25℃)$ – Tj



V_{TM} – I_T



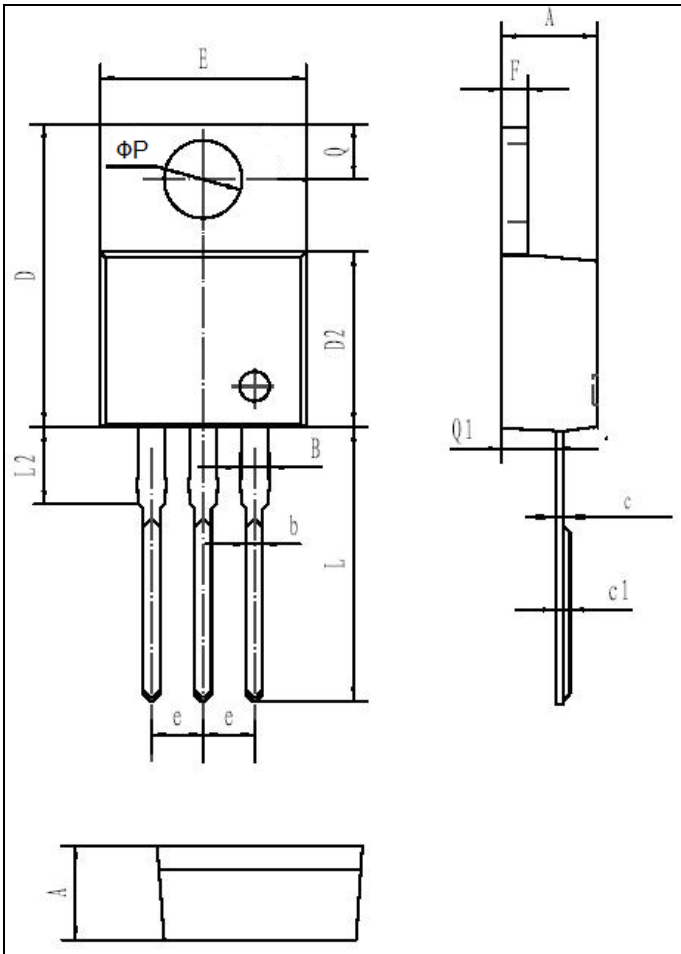
ITSM(A) / number of cycles (n)



外形尺寸 PACKAGE MECHANICAL DATA

TO-220

单位 Unit ： mm

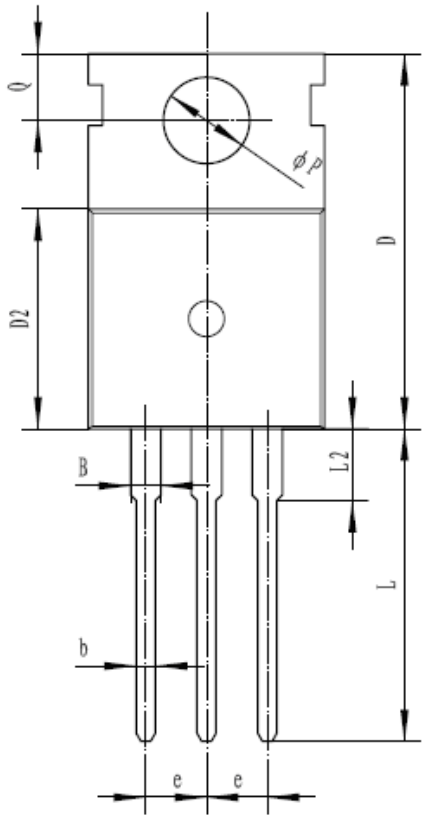


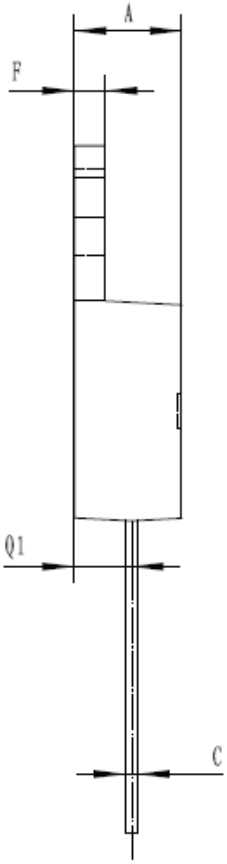
符号 symbol	MIN	MAX
A	4.40	4.80
B	1.10	1.40
b	0.70	0.95
c	0.28	0.48
c1	0.32	0.52
D	14.45	16.00
D2	8.20	9.20
E	9.60	10.40
e	2.39	2.69
F	1.20	1.35
L	13.05	14.05
L2	3.70	3.90
Q	2.40	3.00
Q1	2.20	2.90
P	3.50	4.00

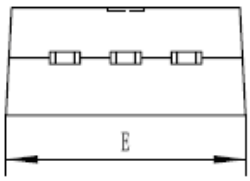
外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit ：mm





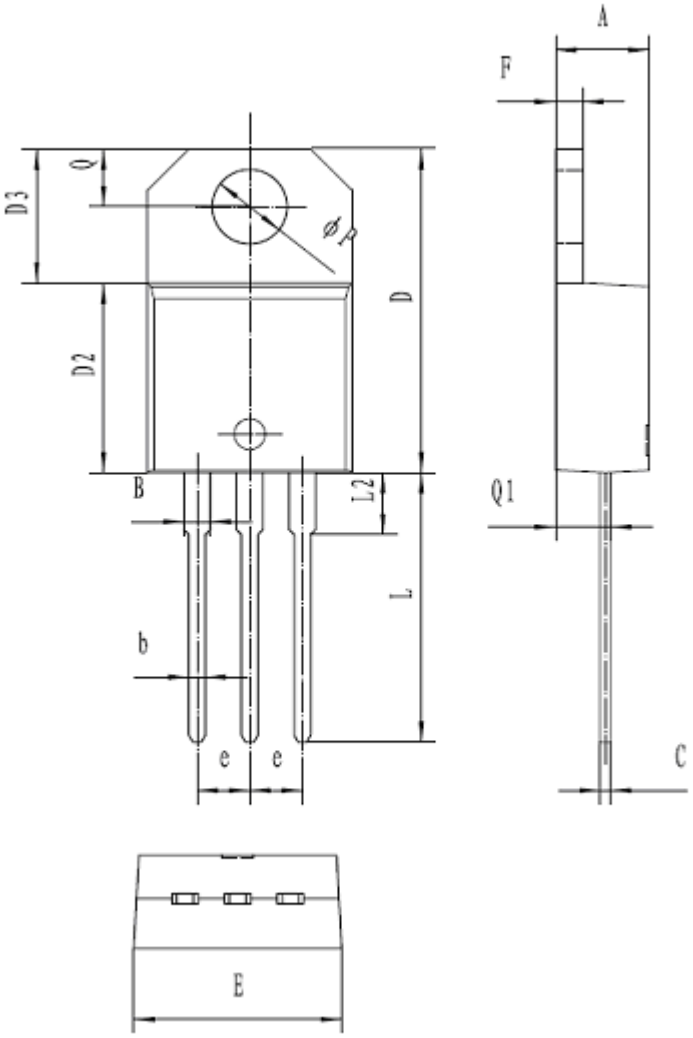


符号 symbol	MIN	MAX
A	4.30	4.70
B	1.22	1.40
b	0.70	0.95
c	0.40	0.65
D	15.20	16.20
D2	9.00	9.40
E	9.70	10.10
e	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L2	2.80	3.20
Q	2.60	3.00
Q1	2.20	2.60
P	3.50	3.80

外形尺寸 PACKAGE MECHANICAL DATA

TO-220S

单位 Unit ： mm

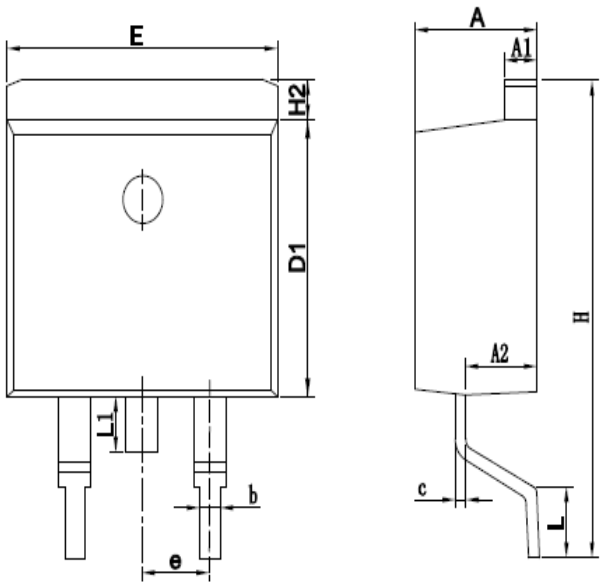


符号 symbol	MIN	MAX
A	4.40	4.60
B	1.14	1.70
b	0.61	0.88
C	0.47	0.70
D	15.20	15.90
D2	8.60	9.70
D3	6.20	6.60
E	10.00	10.40
e	2.40	2.70
F	1.23	1.32
L	13.00	14.00
L2	typ. 3.75	
Q	2.65	2.95
Q1	2.89	3.42
P	3.72	3.85

外形尺寸 PACKAGE MECHANICAL DATA

TO-263

单位 Unit ： mm



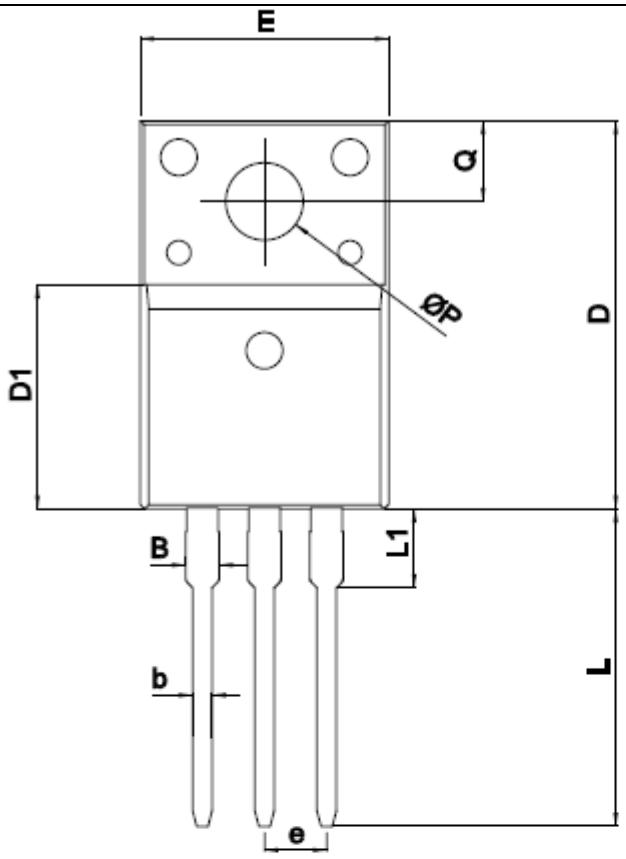
SYMBOL	MM	
	MIN	MAX
A	4.30	4.80
A1	1.12	1.42
A2	2.54	2.84
b	0.67	1.00
c	0.29	0.52
D1	8.40	9.00
E	9.80	10.46
e	2.54BSC	
H	14.00	16.00
H2	1.12	1.45
L	1.50	3.10
L1	1.45	1.70

单位：mm

外形尺寸 PACKAGE MECHANICAL DATA

TO-220MF-K1

单位 Unit ： mm

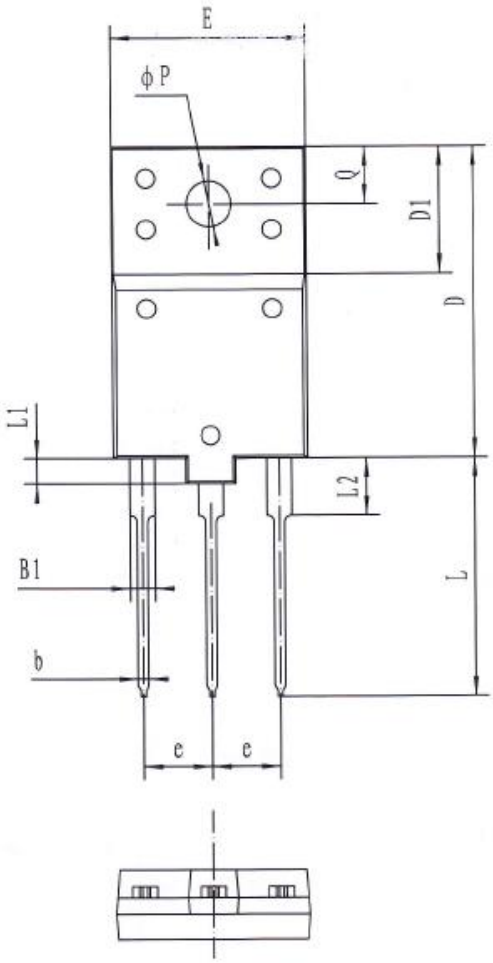


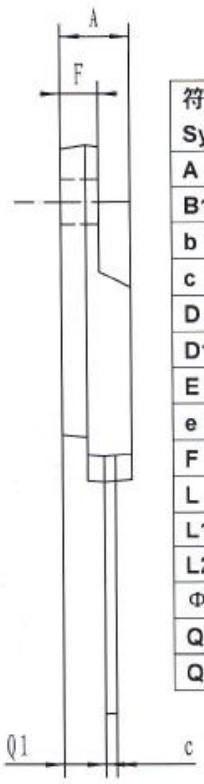
SYMBOL	mm	
	MIN	MAX
A	4.5	4.9
B	1.22	1.47
b	0.7	0.9
c	0.45	0.60
D	15.6	16.1
D1	9.0	9.3
e	2.54TYPE	
E	9.9	10.4
F	2.3	2.8
L	12.6	13.3
L1	3.1	3.4
Q	3.2	3.4
Q1	2.6	2.9
ΦP	3.0	3.5

外形尺寸 **PACKAGE MECHANICAL DATA**

TO-3P（H）IS

单位 Unit ： mm





符 号 Symbol	Min	Max
A	5.2	5.8
B1	1.8	2.2
b	0.75	1.05
c	0.8	1.1
D	24.0	25.0
D1	9.8	10.2
E	15.0	16.0
e	5.45（typ）	
F	2.7	3.3
L	18.5	19.5
L1	1.8	2.2
L2	4.3	4.7
ΦP	3.4	3.8
Q	4.3	4.7
Q1	3.1	3.5

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3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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