

# BT151

## 主要参数 MAIN CHARACTERISTICS

$I_{T(AV)}$	7.5A
$V_{DRM}/V_{RRM}$	500V
$I_{GT}$	1-15mA

### 用途

- 半交流开关
- 相位控制

### APPLICATIONS

- Half AC switching
- Phase control

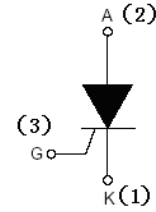
### 产品特性

- 玻璃钝化芯片，高可靠性和一致性
- 低通态电流和高浪涌电流能力
- 环保 RoHS 产品

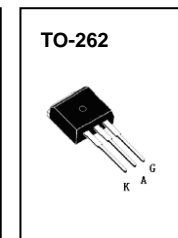
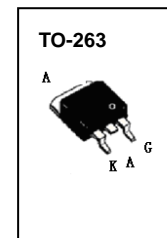
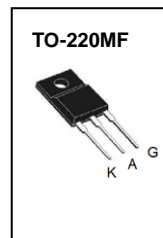
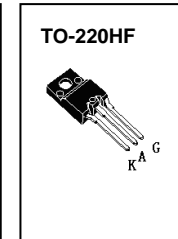
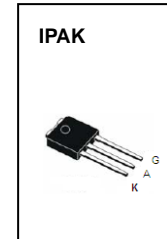
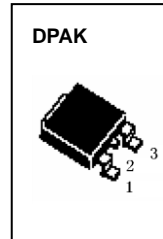
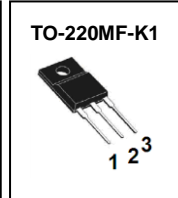
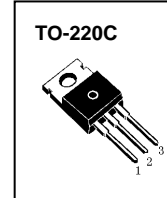
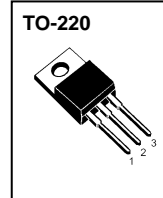
### FEATURES

- Glass-passivated mesa chip for reliability and uniform
- Low on-state voltage and High  $I_{TSM}$
- RoHS products

## 封装 Package



序号 Pin	引线名称 Description
1	阴极 K
2	阳极 A
3	门极 G



## 订货信息 ORDER MESSAGE

订货型号 Order codes				印记 Marking	封装 Package
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	TO-220
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-CA-B	BT151-CA-BR	BT151-CA-C	BT151-CA-CR		



有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	TO-220C
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-C-B	BT151-C-BR	BT151-C-C	BT151-C-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	TO-220MF-K1
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-F1-B	BT151-F1-BR	BT151-F1-C	BT151-F1-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	TO-220MF
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-F-B	BT151-F-BR	BT151-F-C	BT151-F-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	TO-220HF
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-FA-B	BT151-FA-BR	BT151-FA-C	BT151-FA-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	TO-263
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-S-B	BT151-S-BR	BT151-S-C	BT151-S-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	TO-262
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-B-B	BT151-B-BR	BT151-B-C	BT151-B-CR		
有卤-编带	无卤-编带	有卤-袋装	有卤-袋装	BT151	DPAK
Halogen-Reel	Halogen-Free-Reel	Halogen-Bag	Halogen-Free-Bag		
BT151-R-A	BT151-R-AR	BT151-R-C	BT151-R-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	BT151	IPAK
Halogen-Tube	halogen-Free-Tube	Halogen-Bag	Halogen-Free-Bag		
BT151-V-B	BT151-V-BR	BT151-V-C	BT151-V-CR		

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

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
断态重复峰值电压 Repetitive peak off-state voltage	$V_{\text{DRM}}$	500	V
反向重复峰值电压 Repetitive peak reverse voltage	$V_{\text{RRM}}$	500	V
通态平均电流 Average on-state current (half sine wave)	$I_{\text{T(AV)}}$	7.5	A
通态方均根电流 On-state RMS current (all conduction angles)	$I_{\text{T(RMS)}}$	12	A
非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current (half sine wave, $t=10\text{ms}$ )	$I_{\text{TSM}}$	110	A
$I^2t$ for fusing ( $t=10\text{ms}$ )	$I^2t$	60	$\text{A}^2\text{s}$
门极峰值电流 Peak gate current	$I_{\text{GM}}$	2	A
门极峰值电压 Peak gate voltage	$V_{\text{GM}}$	5	V
反向门极峰值电压 Peak reverses gate voltage	$V_{\text{RGM}}$	5	V
门极峰值功率 Peak gate power	$P_{\text{GM}}$	5	W
门极平均功率 Average gate power (over any 20ms period)	$P_{\text{G(AV)}}$	0.5	W
存储温度 Storage temperature	$T_{\text{stg}}$	-40~150	$^\circ\text{C}$
操作结温 Operation junction temperature	$T_{\text{J}}$	125	$^\circ\text{C}$

**静态特性 STATIC CHARACTERISTICS ( $T_c=25^\circ\text{C}$  unless otherwise stated)**

项 目 Parameter	符号 Symbol	测试条件 Tests conditions	最小 min	典型 typ	最大 max	单位 Unit
断态峰值重复电流 Peak Repetitive Blocking Current	$I_{\text{DRM}}$	$V_{\text{DM}}=V_{\text{DRM(MAX)}}$ , $T_{\text{J}}=125^\circ\text{C}$	-	-	1.0	mA
反向峰值重复电流 Peak Repetitive Reverse Current	$I_{\text{RRM}}$	$V_{\text{RM}}=V_{\text{RRM(MAX)}}$ , $T_{\text{J}}=125^\circ\text{C}$	-	-	1.0	mA
峰值通态电压 Peak on-state voltage	$V_{\text{TM}}$	$I_{\text{TM}}=23\text{A}$	-	1.40	1.75	V
门极触发电流 Gate trigger current	$I_{\text{GT}}$	$V_{\text{DM}}=12\text{V}, I_{\text{T}}=0.1\text{A}$	1	4	15	mA
门极触发电压 Gate trigger voltage	$V_{\text{GT}}$	$V_{\text{DM}}=12\text{V}, I_{\text{T}}=0.1\text{A}$	-	0.8	1.5	V
维持电流 Holding current	$I_{\text{H}}$	$V_{\text{DM}}=12\text{V}, I_{\text{GT}}=0.1\text{A}$	-	-	25	mA
擎住电流 Latching current	$I_{\text{L}}$	$V_{\text{DM}}=12\text{V}, I_{\text{GT}}=0.1\text{A}$	-	-	40	mA

**动态特性 DYNAMIC CHARACTERISTICS ( $T_c=25^\circ\text{C}$  unless otherwise stated)**

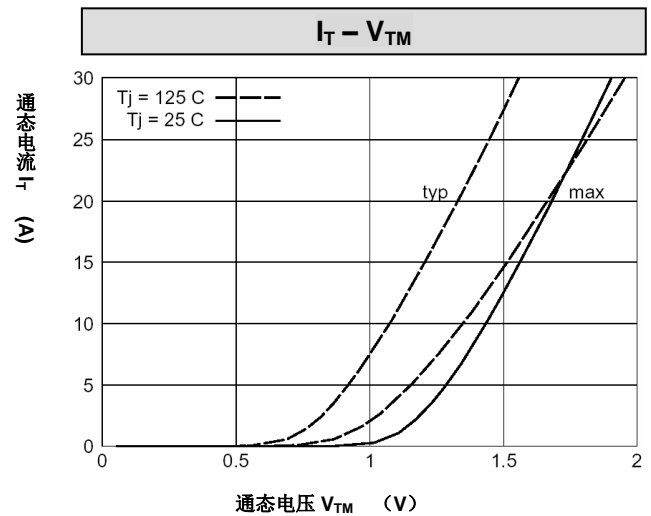
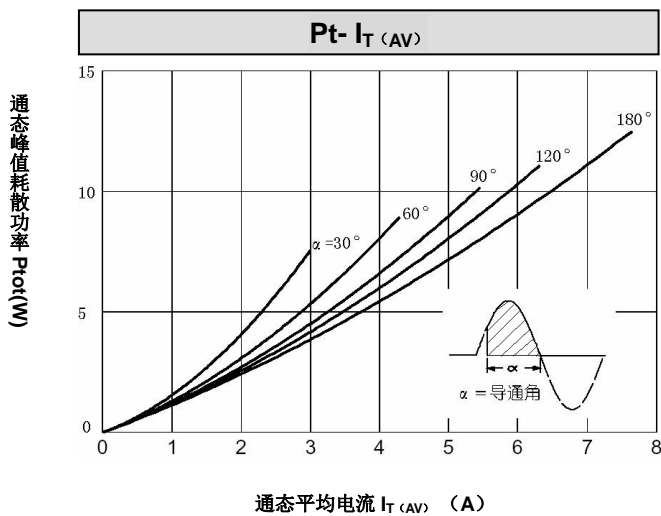
项 目 Parameter	符号 Symbol	测试条件 Tests conditions	最小 min	典型 typ	最大 max	单位 Unit
断态临界电压上升率 Critical rate of rise of off-state voltage	dV/dt	$V_{\text{DM}}=67\% V_{\text{DRM(MAX)}}$ , $T_{\text{J}}=125^\circ\text{C}$	100	-	-	V/ $\mu\text{s}$

**热特性 THERMAL CHARACTERISTIC**

项 目 Parameter	符 号 Symbol	值 value	单 位 Unit
结到管壳的热阻 Thermal resistance junction to case	TO-220(C)\TO-263\TO-262	$R_{th(j-c)}$	1.3 max
	DPAK\IPAK	$R_{th(j-c)}$	1.8 max
结到散热片的热阻 Thermal resistance junction to heatsink	TO-220HF/TO-220MF-K1\TO-220MF	$R_{th(j-hs)}$	4.5 max
结到环境的热阻 Thermal resistance junction to ambient ( half cycle)		$R_{th(j-a)}$	60 typ

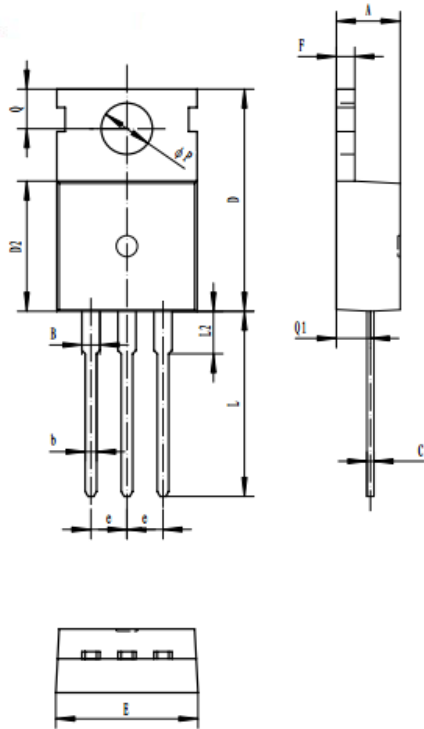
**电绝缘特性 ELECTRICAL ISOLATION**

项 目 Parameter	符号 Symbol	测试条件 Tests conditions	数值 Value	单 位 Unit
绝缘电压 Isolation voltage	$V_{ISOL}$	1 minute, leads to mounting tab TO-220HF/ TO-220MF-K1\TO-220MF	2000	V

**特征曲线 ELECTRICAL CHARACTERISTICS (curves)**


**外形尺寸 PACKAGE MECHANICAL DATA**
**TO-220C**

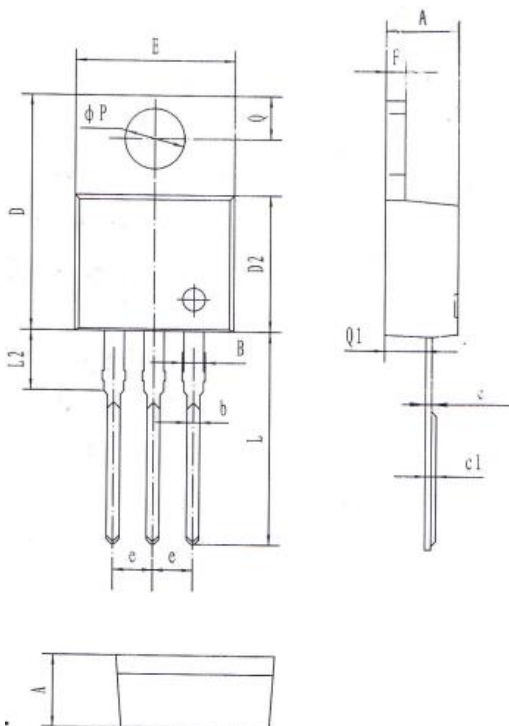
单位 Unit : mm



<b>A</b>	4.30-4.70
<b>B</b>	1.22-1.40
<b>b</b>	0.70-0.95
<b>c</b>	0.40-0.65
<b>D</b>	15.2-16.2
<b>D2</b>	9.00-9.40
<b>E</b>	9.70-10.10
<b>e</b>	2.39-2.69
<b>F</b>	1.25-1.40
<b>L</b>	12.60-13.60
<b>L2</b>	2.80-3.20
<b>Q</b>	2.60-3.00
<b>Q1</b>	2.20-2.60
<b>P</b>	3.50-3.80

**TO-220**

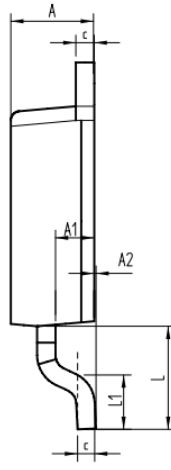
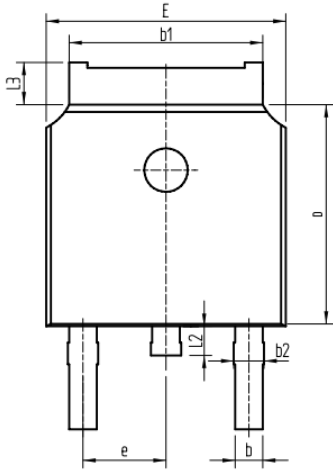
单位 Unit : mm



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

**DPAK**

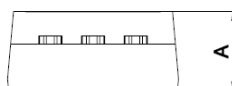
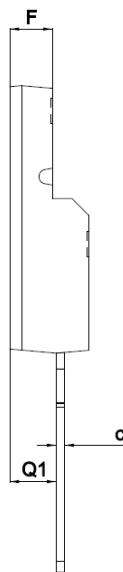
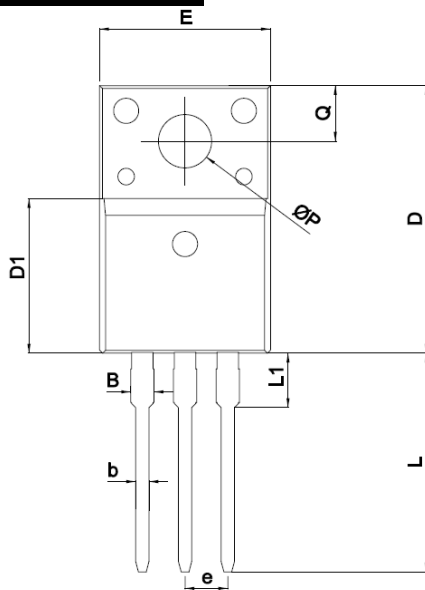
单位 Unit : mm



<b>A</b>	2.16-2.41
<b>A1</b>	0.97-1.17
<b>A2</b>	0.00-0.15
<b>b</b>	0.63-0.93
<b>b1</b>	5.13-5.53
<b>b2</b>	0.66-0.96
<b>c</b>	0.40-0.60
<b>D</b>	5.80-6.40
<b>E</b>	6.30-6.90
<b>e</b>	2.286 BSC
<b>L</b>	2.50-3.30
<b>L1</b>	1.20-1.80
<b>L2</b>	0.60-1.00
<b>L3</b>	0.85-1.30

**TO-220MF-K1**

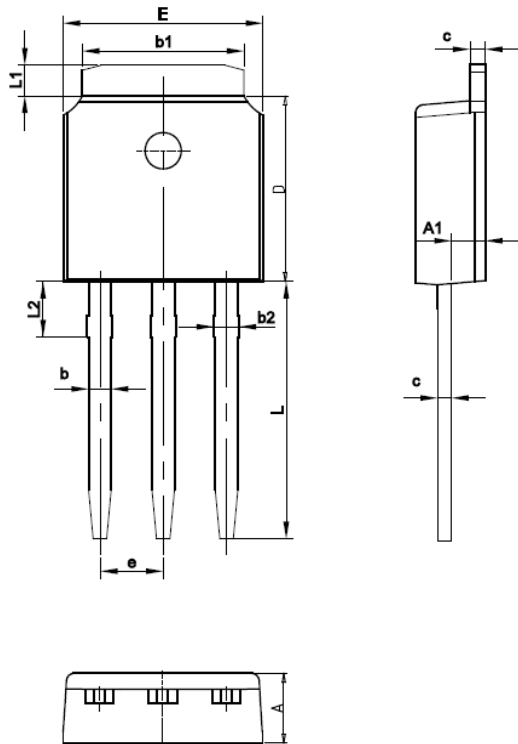
单位 Unit : mm



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

**IPAK**

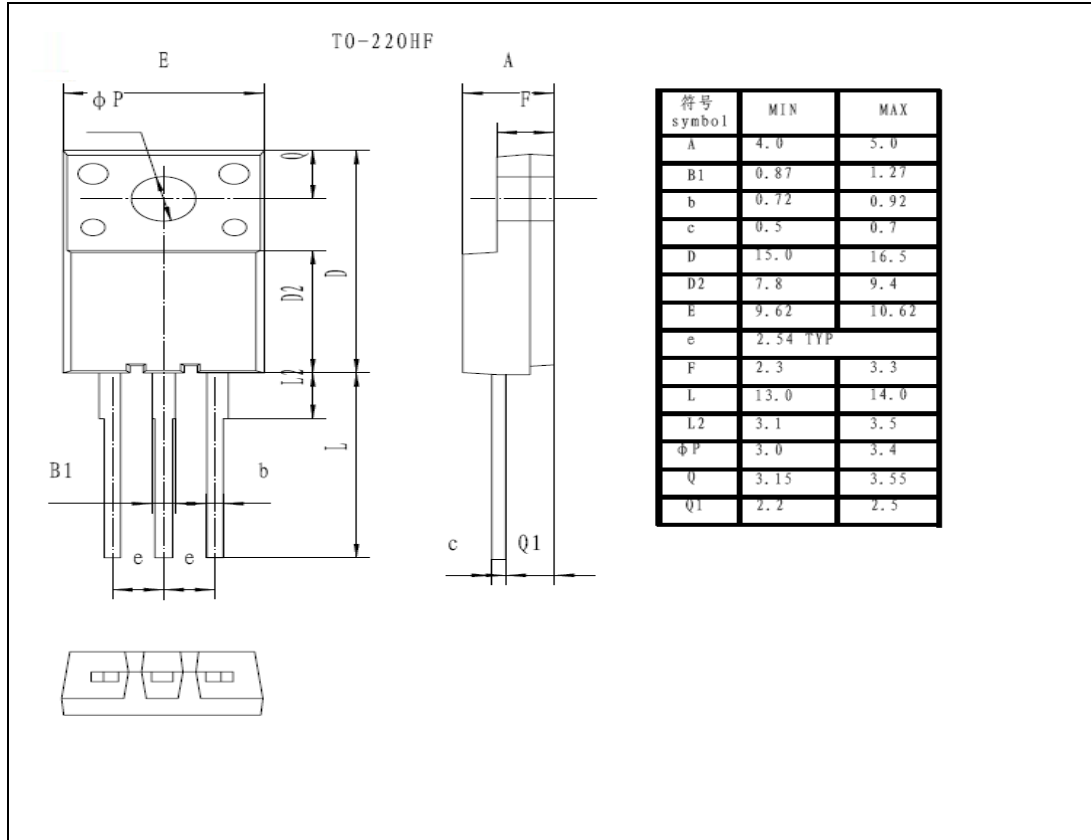
单位 Unit : mm



SYMBOL	MM	
	MIN	MAX
A	2.10	2.50
A1	0.87	1.27
b	0.63	0.93
b1	5.13	5.53
b2	0.67	1.00
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
L	9.10	9.70
e	2.286BSC	
L1	0.82	1.22
L2	0.90	1.20

**TO-220HF**

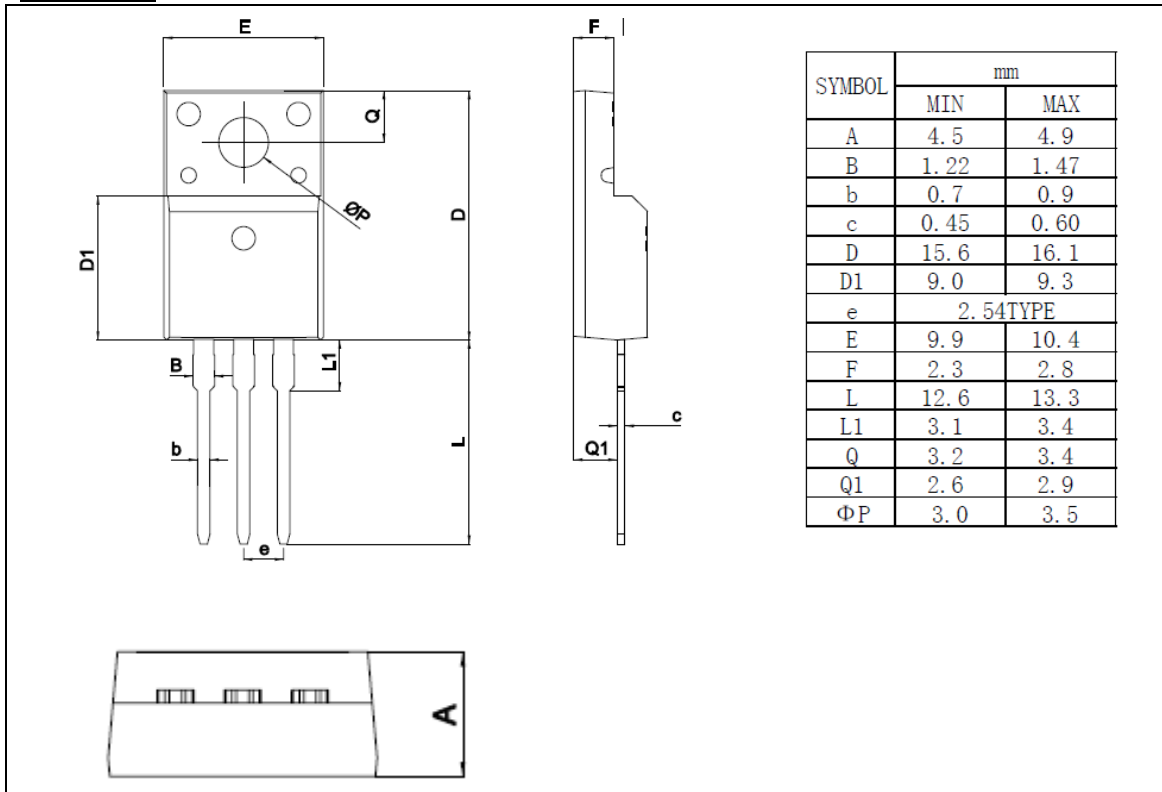
单位 Unit : mm



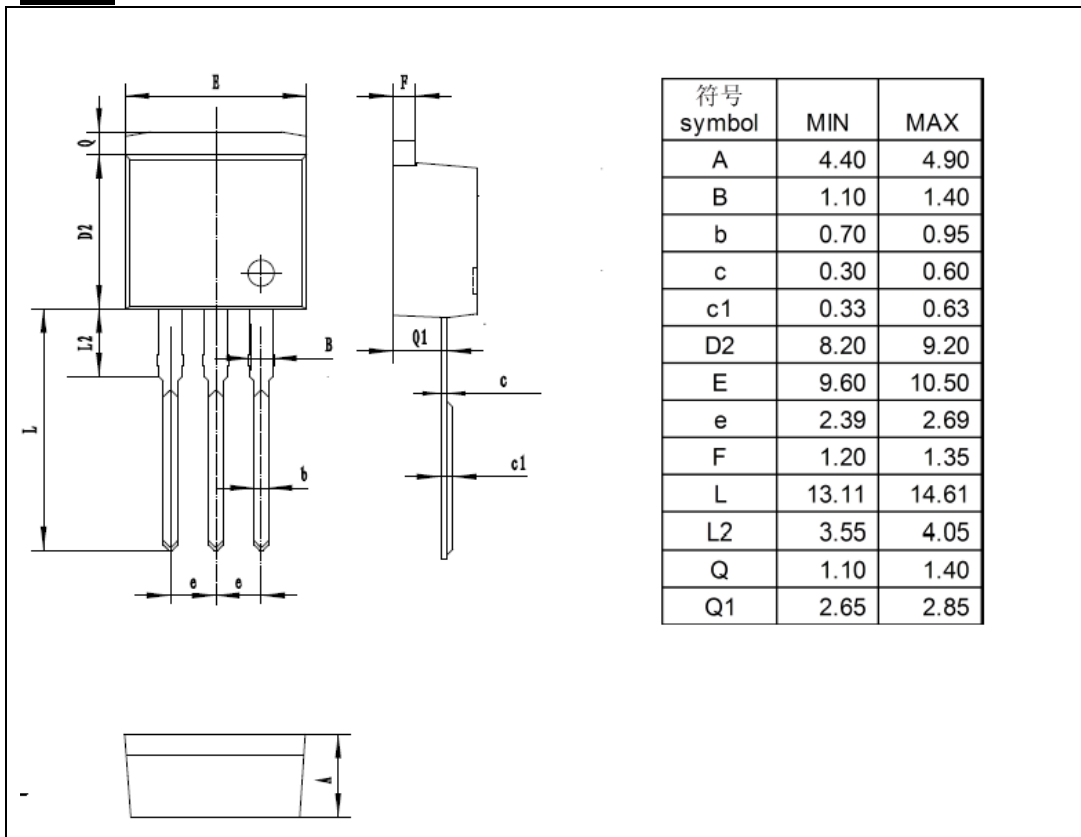
符号 symbol	MIN	MAX
A	4.0	5.0
B1	0.87	1.27
b	0.72	0.92
c	0.5	0.7
D	15.0	16.5
D2	7.8	9.4
E	9.62	10.62
e	2.54 TYP	
F	2.3	3.3
L	13.0	14.0
L2	3.1	3.5
φP	3.0	3.4
Q	3.15	3.55
Q1	2.2	2.5

**TO-220MF**

单位 Unit : mm


**TO-262**

单位 Unit : mm





TO-263

单位 Unit : mm

