



# CS1215M1H

## 主要参数 MAIN CHARACTERISTICS

$I_{T(RMS)}$	12A
$V_{DRM}/V_{RRM}$	600V/800V
$I_{GT}$	2-10mA
$T_{jmax}$	150 °C

### 用途

- 半交流开关
- 相位控制

### APPLICATIONS

- Half AC switching
- Phase control

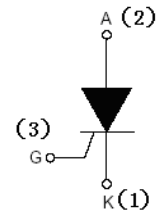
### 产品特性

- 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

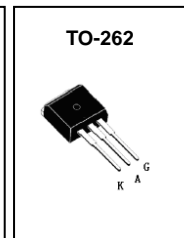
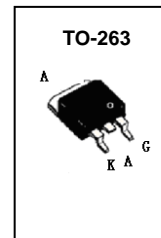
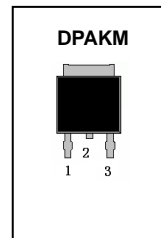
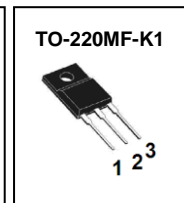
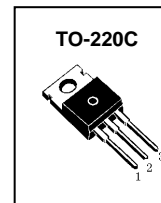
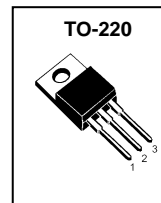
### FEATURES

- 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	CS1215 M1H	TO-220
Halogen-Tube	halogen-Free-Tube	Halogen- Bag	Halogen-Free-Bag		
CS1215M1H -CA-B	CS1215M1H -CA-BR	CS1215M1H -CA-C	CS1215M1H -CA-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	CS1215 M1H	TO-220C
Halogen-Tube	halogen-Free-Tube	Halogen- Bag	Halogen-Free-Bag		
CS1215M1H -C-B	CS1215M1H -C-BR	CS1215M1H -C-C	CS1215M1H -C-CR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	CS1215 M1H	TO-220 MF-K1
Halogen-Tube	halogen-Free-Tube	Halogen- Bag	Halogen-Free-Bag		
CS1215M1H -F1-B	CS1215M1H -F1-BR	CS1215M1H -F1-C	CS1215M1H -F1-CR		
有卤-条管	无卤-条管	有卤-编带	无卤-编带	CS1215 M1H	TO-263
Halogen-Tube	halogen-Free-Tube	Halogen-Reel	Halogen-Free-Reel		
CS1215M1H -S-B	CS1215M1H -S-BR	CS1215M1H -S-A	CS1215M1H -S-AR		
有卤-条管	无卤-条管	有卤-袋装	有卤-袋装	CS1215 M1H	TO-262
Halogen-Tube	halogen-Free-Tube	Halogen- Bag	Halogen-Free-Bag		
CS1215M1H -B-B	CS1215M1H -B-BR	CS1215M1H -B-C	CS1215M1H -B-CR		
有卤-编带	无卤-编带	有卤-袋装	有卤-袋装	CS1215 M1H	DPAKM
Halogen-Reel	Halogen-Free-Reel	Halogen- Bag	Halogen-Free-Bag		
CS1215M1H -RM-A	CS1215M1H -RM-AR	CS1215M1H -RM-C	CS1215M1H -RM-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	$V_{\text{DRM}}$	600/800	V
反向重复峰值电压 Repetitive peak reverse voltage	$V_{\text{RRM}}$	600/800	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	$T_{\text{J}}$	150	$^\circ\text{C}$

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	$I_{\text{DRM}}$	$V_{\text{DM}}=V_{\text{DRM(MAX)}}$ , $T_{\text{J}}=150^\circ\text{C}$	-	-	1.0	mA
反向峰值重复电流 Peak Repetitive Reverse Current	$I_{\text{RRM}}$	$V_{\text{RM}}=V_{\text{RRM(MAX)}}$ , $T_{\text{J}}=150^\circ\text{C}$	-	-	1.0	mA





峰值通态电压 Peak on-state voltage	$V_{TM}$	$I_{TM}=23A$	-	1.40	1.75	V
门极触发电流 Gate trigger current	$I_{GT}$	$V_{DM}=12V, I_T=0.1A$	2	4	10	mA
门极触发电压 Gate trigger voltage	$V_{GT}$	$V_{DM}=12V, I_T=0.1A$	-	0.8	1.5	V
维持电流 Holding current	$I_H$	$V_{DM}=12V, I_{GT}=0.1A$	-	-	25	mA
擎住电流 Latching current	$I_L$	$V_{DM}=12V, I_{GT}=0.1A$	-	-	40	mA

### 动态特性 DYNAMIC CHARACTERISTICS ( $T_C=25^\circ C$ 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	$V_{DM}=67\% V_{DRM(MAX)}$ , $T_j=150^\circ C$	300	-	-	V/ $\mu s$

### 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
	DPAKM	$R_{th(j-c)}$	1.8 max
结到散热片的热阻 Thermal resistance junction to heatsink	TO-220MF-K1	$R_{th(j-hs)}$	4.5 max
结到环境的热阻 Thermal resistance junction to ambient ( half cycle)	$R_{th(j-a)}$	60 typ	$^\circ C/W$

### 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-220MF-K1	2000	V

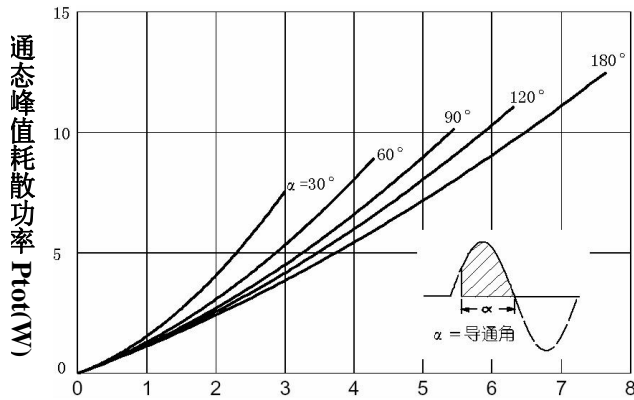




特征曲线 ELECTRICAL CHARACTERISTICS (curves)

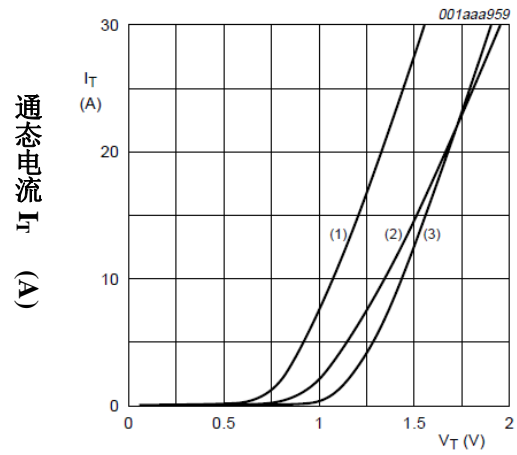
通态平均电流  $I_T(AV)$  (A)

Pt-  $I_T(AV)$



通态电压  $V_{TM}$  (V)

$I_T - V_{TM}$

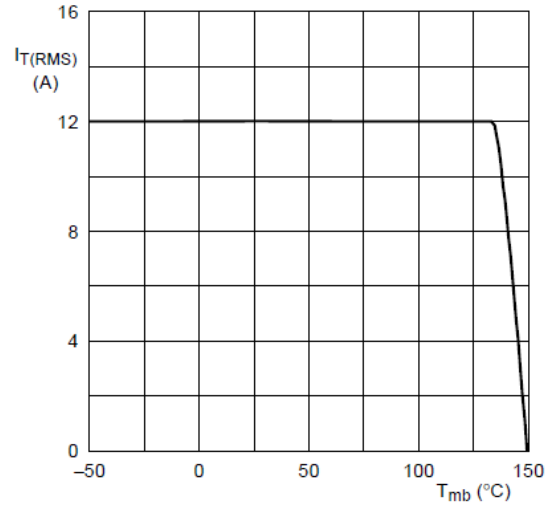
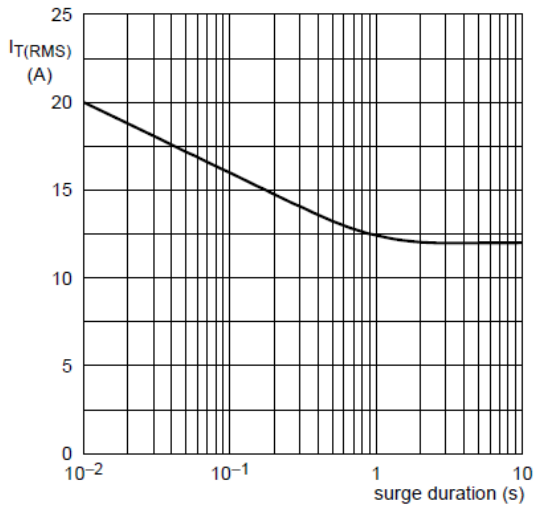


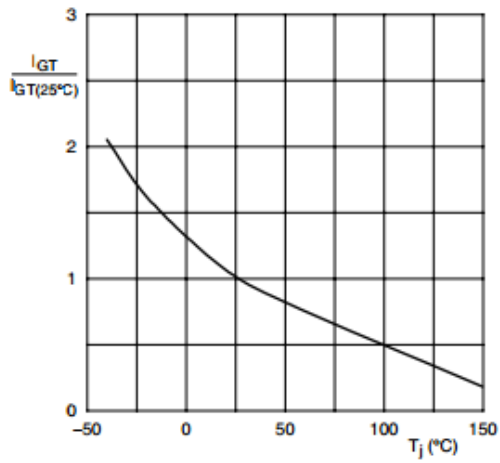
$V_o = 1.06 V$

$R_s = 0.0304 \Omega$

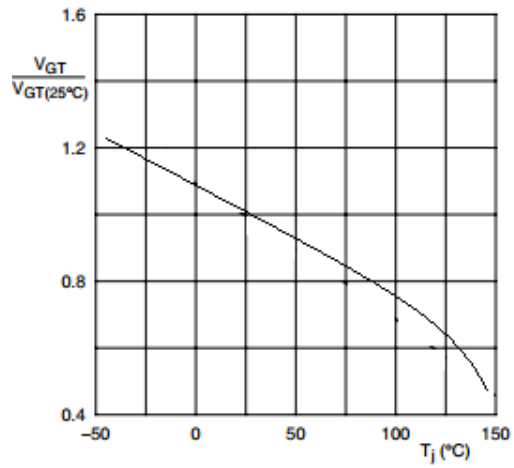
- (1)  $T_j = 150^\circ C$ ; typical values
- (2)  $T_j = 150^\circ C$ ; maximum values
- (3)  $T_j = 25^\circ C$ ; maximum values

Non-repetitive peak on-state current as a function of pulse width for sinusoidal currents; maximum values

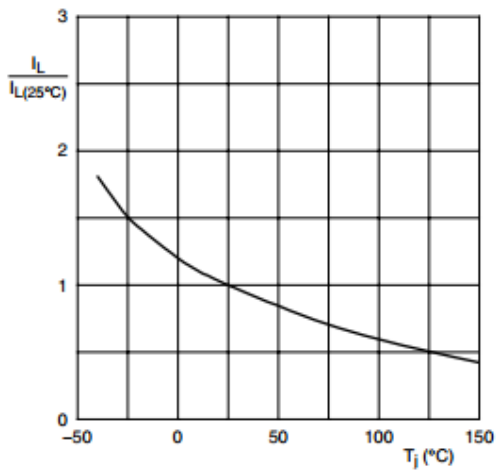




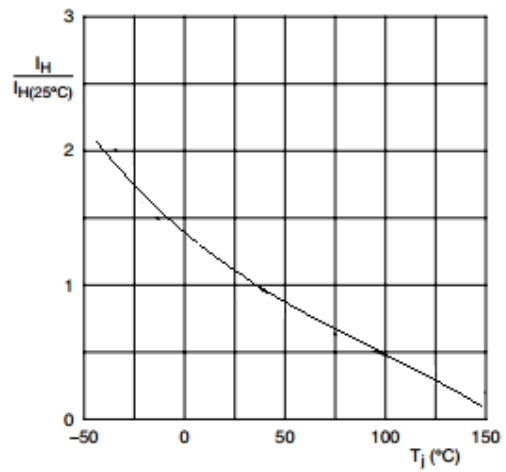
Normalized gate trigger current as a function of junction temperature



Normalized gate trigger voltage as a function of junction temperature



Normalized latching current as a function of junction temperature



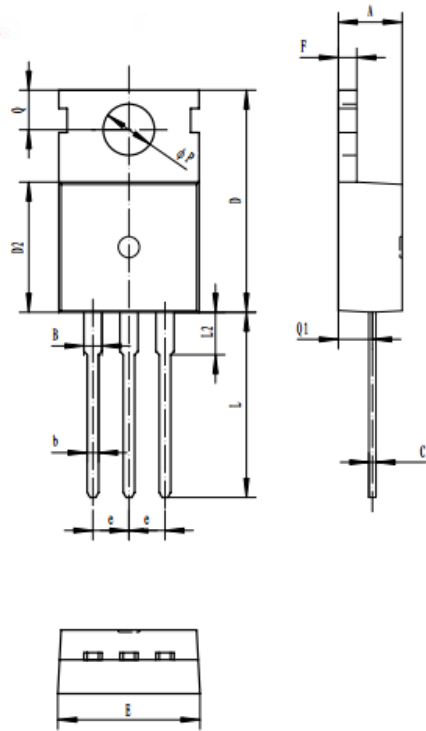
Normalized holding current as a function of junction temperature



外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

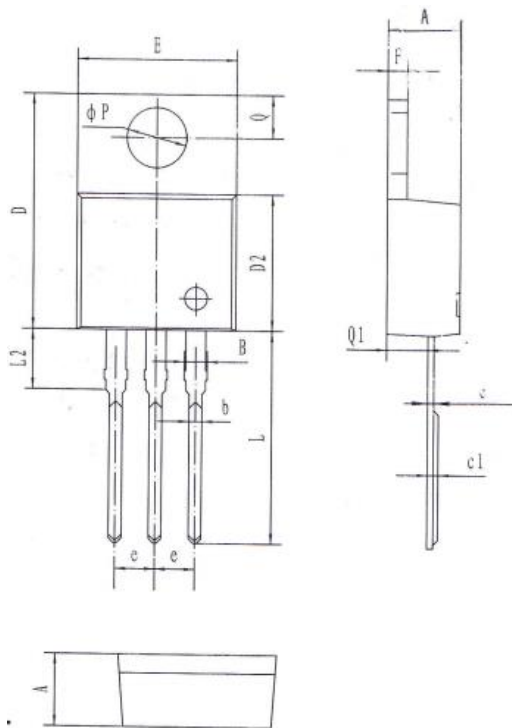
单位 Unit : mm



A	4.30-4.70
B	1.22-1.40
b	0.70-0.95
c	0.40-0.65
D	15.2-16.2
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

TO-220

单位 Unit : mm



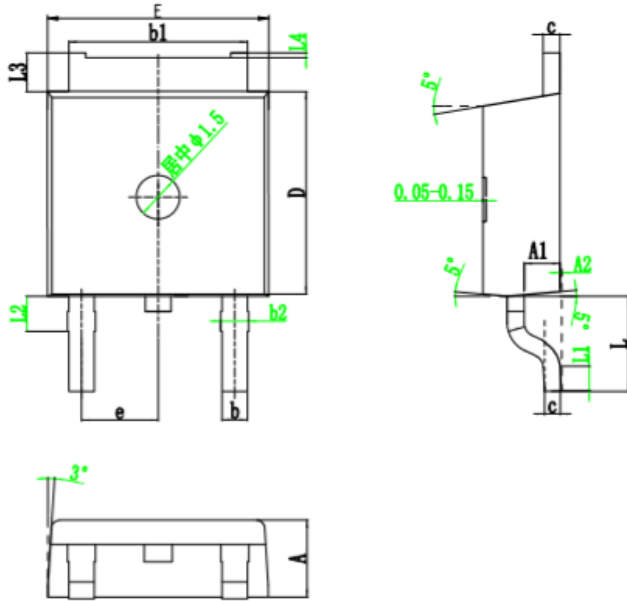
A	4.40-4.80
B	1.10-1.40
b	0.70-0.95
c	0.28-0.48
c1	0.32-0.52
D	14.45-16.00
D2	8.20-9.20
E	9.60-10.40
e	2.39-2.69
F	1.20-1.35
L	13.05-14.05
L2	3.70-3.90
Q	2.40-3.00
Q1	2.20-2.90
P	3.50-4.00





**DPAKM**

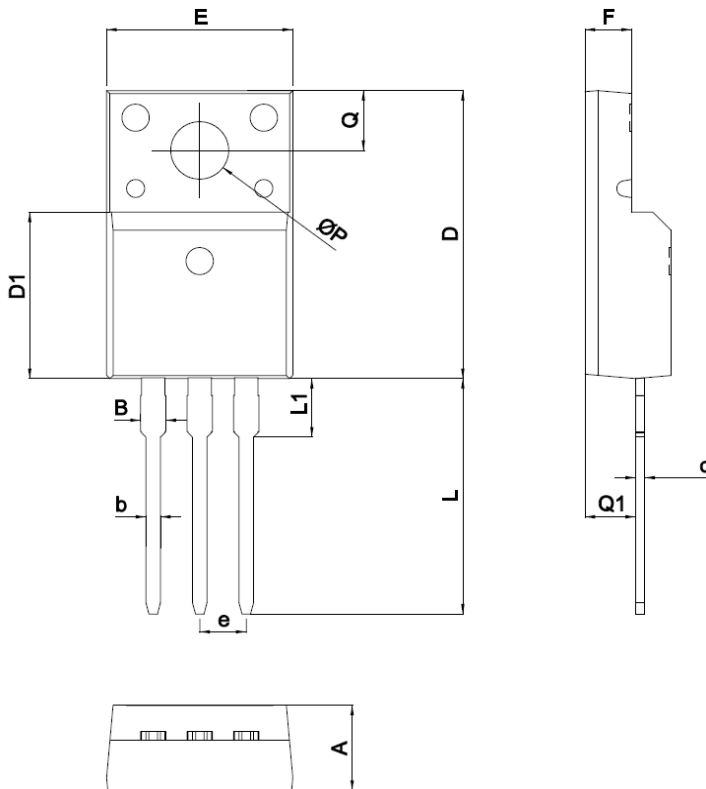
单位 Unit : mm



SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.40
A1	0.90	1.00	1.10
A2	0.00		0.10
b	0.71	0.81	0.91
b1	5.20	5.30	5.40
b2	0.85	0.95	1.05
c	0.47	0.508	0.55
D	6.00	6.15	6.30
E	6.45	6.60	6.75
e	2.186	2.286	2.386
L	2.50	2.70	2.90
L1	0.95	1.15	1.35
L2	1.90	2.00	2.10
L3	0.868	0.968	1.068
L4	0.05	0.1	0.15

**TO-220MF-K1**

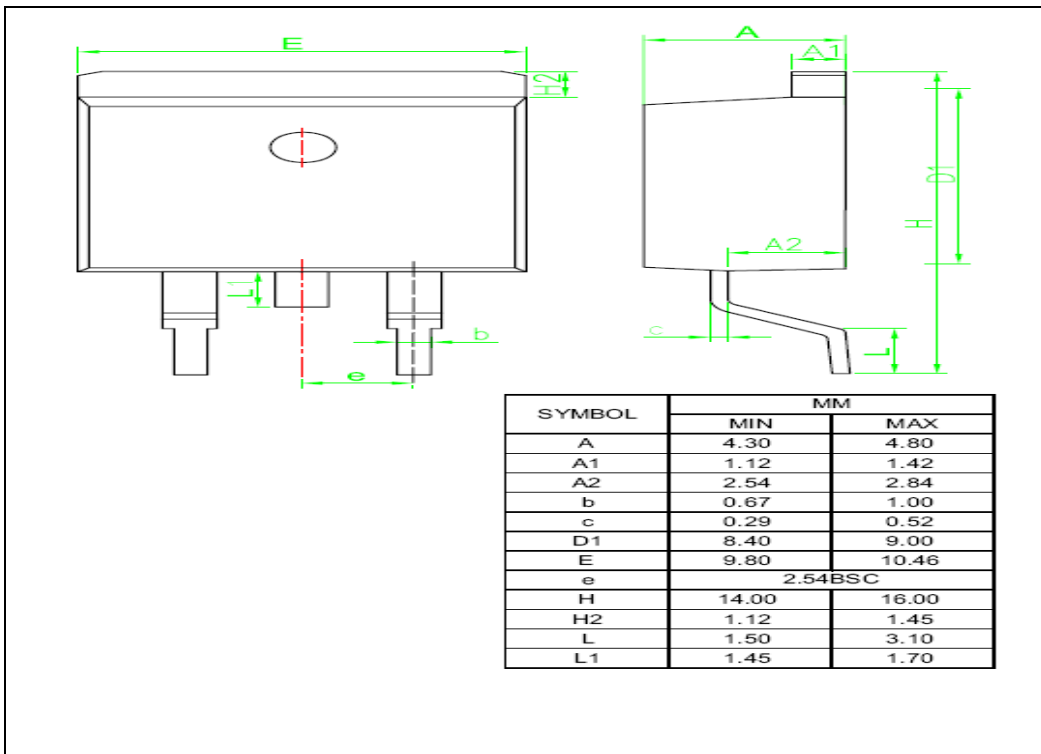
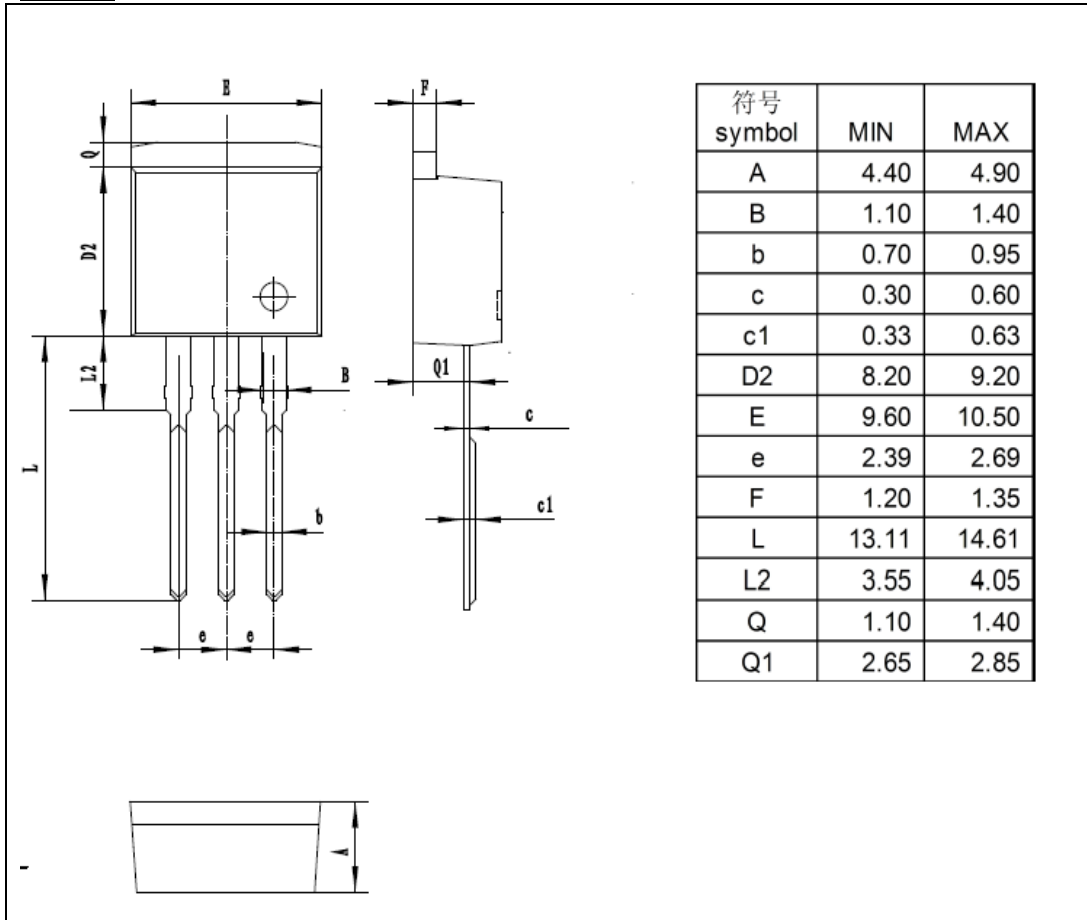
单位 Unit : mm



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







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