



CP1650N3B

主要参数 MAIN CHARACTERISTICS

$I_T(RMS)$	16A
V_{DRM}	800V
$I_{GT}(I,II,III)$	<50mA

用途

- 交流开关
- 相位控制

APPLICATIONS

- AC switching
- Phase control

产品特性

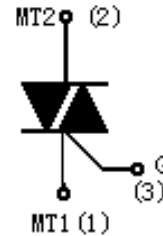
- 平面工艺芯片，高可靠性和一致性
- 三象限可控硅，触发电流的一致性好
- 环保 RoHS 产品
- 150℃ 高结温产品

FEATURES

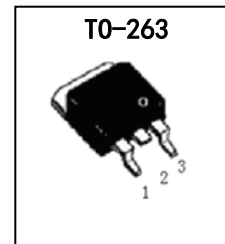
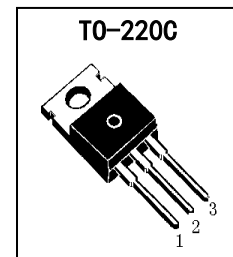
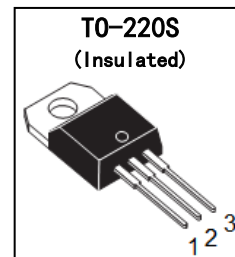
- The planar process chip for reliability and uniform
- Uniform gate trigger currents in three quadrants
- RoHS products
- 150℃ High operating junction temperature

订货信息 ORDER MESSAGES

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



订货型号 Order codes				印 记 Marking	封 装 Package
有卤-条管	无卤-条管	有卤-编带	无卤-编带		
Halogen-Tube	Halogen-Free-Tube	Halogen-Reel	Halogen-Free-Reel		
CP1650N3B-CB-B	CP1650N3B-CB-BR	N/A	N/A	CP1650N3B	TO-220S
CP1650N3B-C-B	CP1650N3B-C-BR	N/A	N/A	CP1650N3B	TO-220C
CP1650N3B-S-B	CP1650N3B-S-BR	CP1650N3B-S-A	CP1650N3B-S-AR	CP1650N3B	TO-263



**概述 GENERAL DESCRIPTION**

CP1650N3B是平面可控硅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-220S(引线与散热片绝缘)、TO-220C和TO-263。

CP1650N3B are The planar process chip 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-220S (internally insulated)、TO-220C and TO-263.

绝对最大额定值 ABSOLUTE RATINGS (Tc=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	120	A
		full sine wave ,t=16.7ms	126	A
	I^2t	t=10ms	72	A ² s
通态电流临界上升率 Repetitive rate of rise of on-state current after triggering	dI/dt	$I_{TM}=20A, I_G=0.2A,$ $dI_G/dt=0.2A/\mu s$	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	1	W
存储温度 Storage temperature	T_{stg}		-40~150	℃
操作结温 Operation junction temperature	T_{VJ}		-40~150	℃



电特性 ELECTRICAL CHARACTERISTIC (T_c=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 _{DRM}	V _{DM} =V _{DRM} , T _j =150°C, gate open		--	2.0	mA
峰值通态电压 Peak on-state voltage	V _{TM}	I _{TM} =20A, T _j =25°C,		--	1.5	V
门极触发电流 Gate trigger current	I _{GT}	V _{DM} =12V, MT1(-),MT2(+),G(+)		--	50	mA
		R _L =100 Ω, MT1(-),MT2(+),G(-)		--	50	mA
		Ω, MT1(+),MT2(-),G(-)		--	50	mA
门极触发电压 Gate trigger voltage	V _{GT}	V _{DM} =12V, MT1(-),MT2(+),G(+)		-	1.5	V
		R _L =100 Ω, MT1(-),MT2(+),G(-)		-	1.5	V
		Ω, MT1(+),MT2(-),G(-)		-	1.5	V
维持电流 Holding current	I _H	V _{DM} =12V, I _{GT} =0.1A		--	60	mA
擎住电流 Latching current	I _L	V _{DM} =12V, MT1(-),MT2(+),G(+)		-	60	mA
		I _{GT} =0.1A, 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 _{DM} =67% V _{DRM(MAX)} , T _j =150°C, gate open	1000	-	-	V/ μ s
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/ μ S	-	2	-	μ s

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-220S)			1.9	°C/W
	R _{th(j-c)}	full cycle(TO-220C/TO-263)			1.2	°C/W

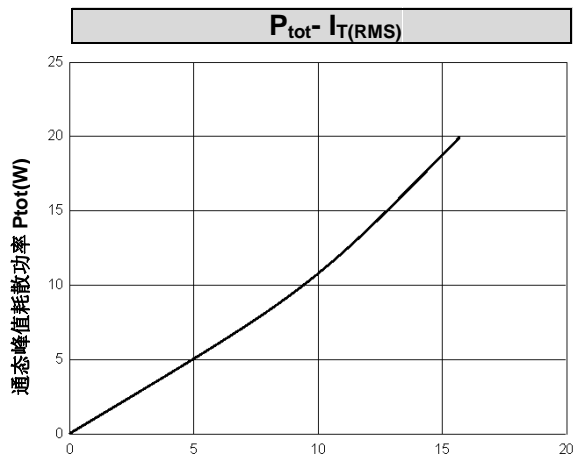
电绝缘特性 ELECTRICAL ISOLATION

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

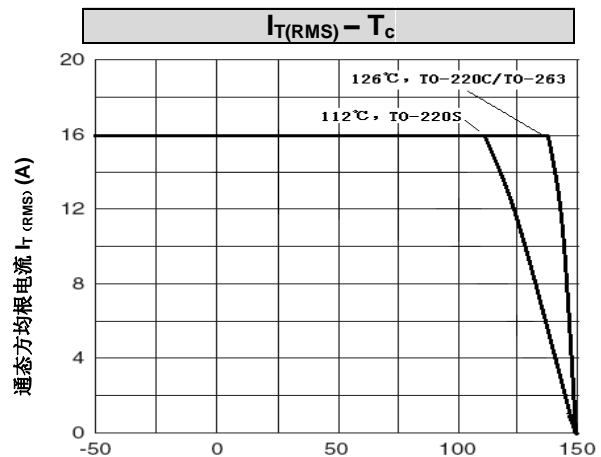




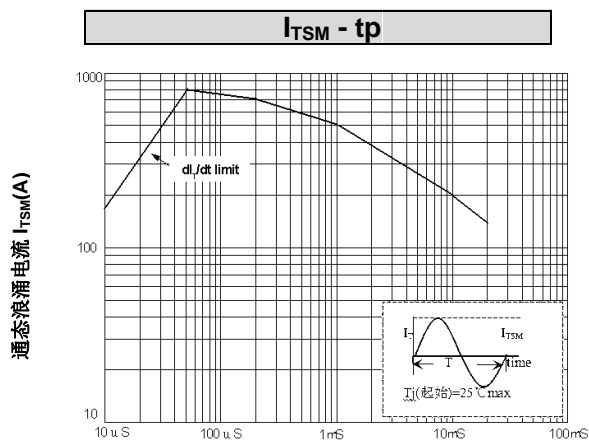
特征曲线 ELECTRICAL CHARACTERISTICS (curves)



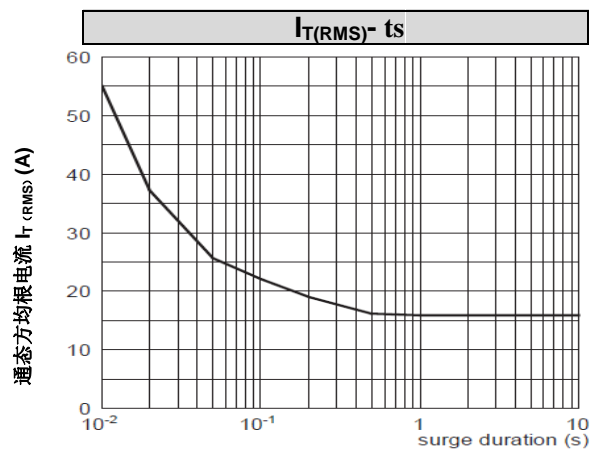
通态方均根电流 I_T (RMS) (A)



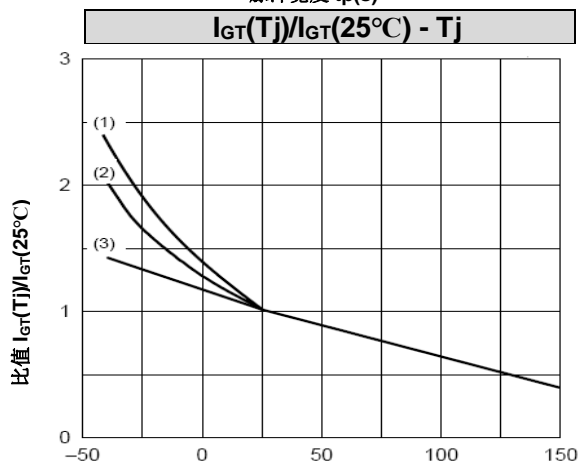
管壳温度 T_c (°C)



$tp \leq 20ms$ (1) di/dt limit
脉冲宽度 tp (s)

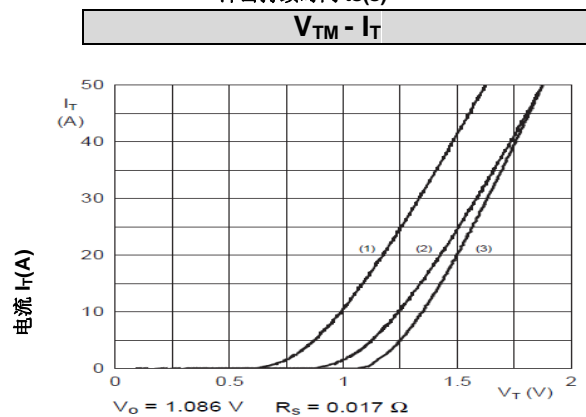


冲击持续时间 ts (s)



(1) T2- G- (2) T2+ G- (3) T2+ G+

结温 T_j (°C)



$V_o = 1.086 V$ $R_s = 0.017 \Omega$
(1) $T_j = 150 \text{ }^\circ\text{C}$: typical values
(2) $T_j = 150 \text{ }^\circ\text{C}$: maximum values
(3) $T_j = 25 \text{ }^\circ\text{C}$: maximum values

通态压降 V_{TM} (V)

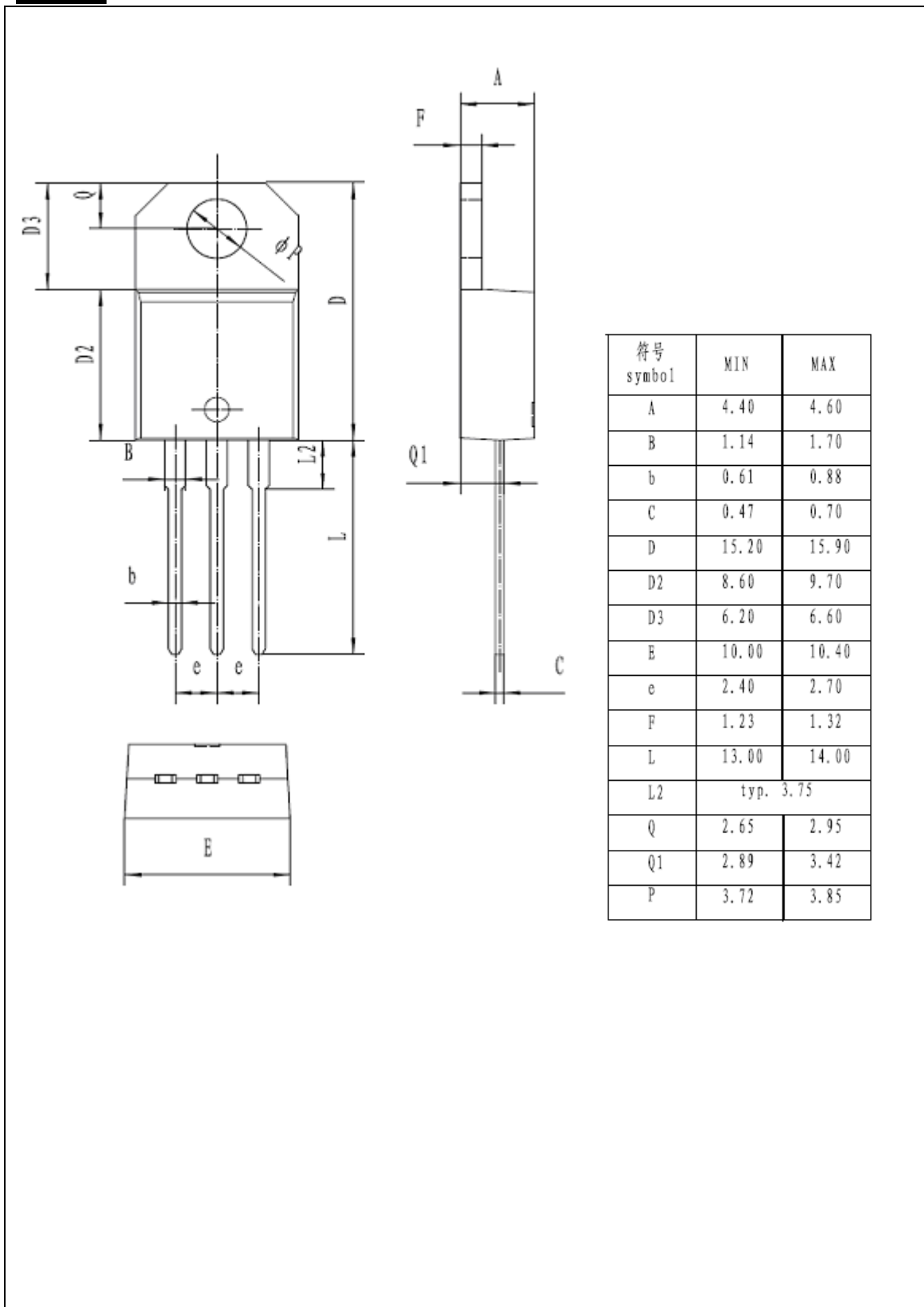




外形尺寸 PACKAGE MECHANICAL DATA

TO-220S

单位 Unit : mm

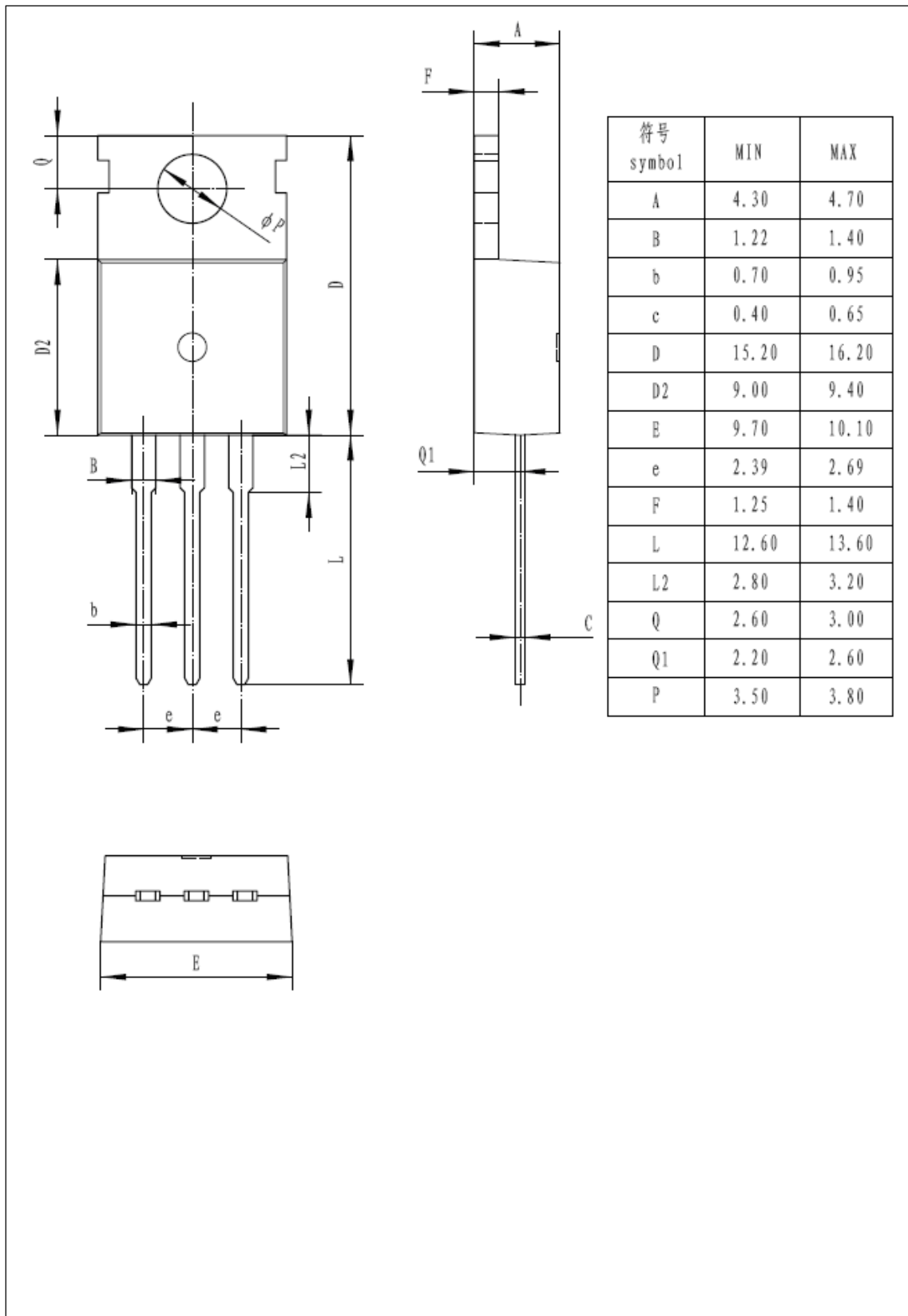




外形尺寸 PACKAGE MECHANICAL DATA

TO-220C

单位 Unit : mm

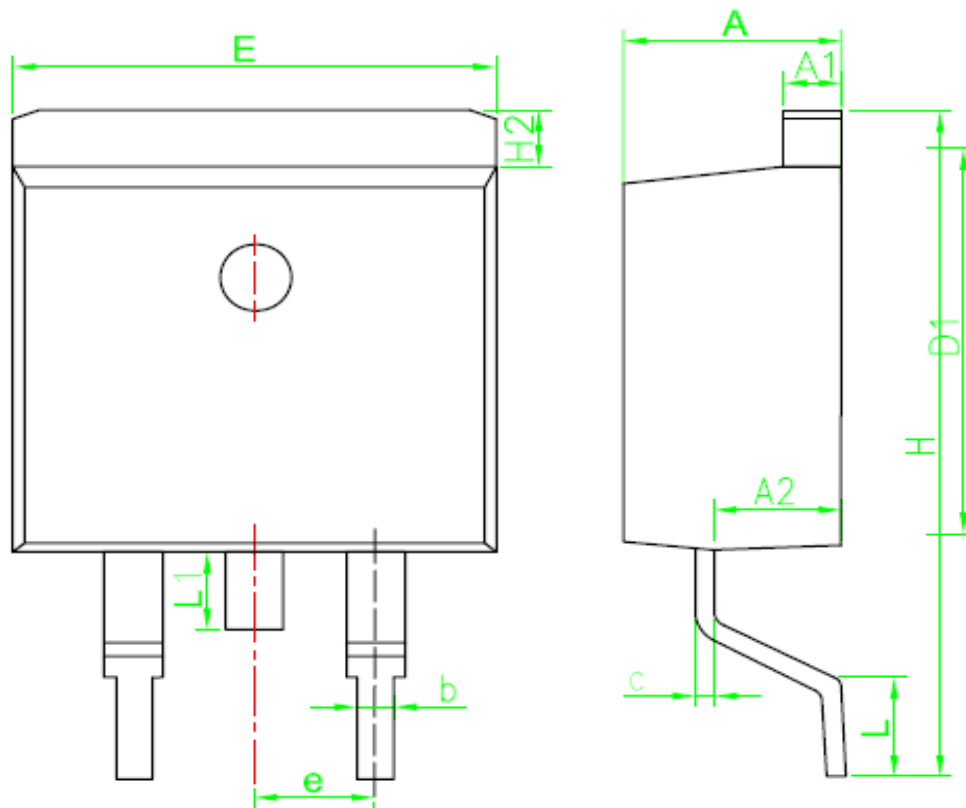




外形尺寸 PACKAGE MECHANICAL DATA

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





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联系方式

吉林华微电子股份有限公司

公司地址：吉林省吉林市深圳街 99 号

邮编：132013

总机：86-432-64678411

传真：86-432-64665812

网址：www.hwdz.com.cn

CONTACT

JILIN SINO-MICROELECTRONICS CO., LTD.

ADD: No.99 Shenzhen Street, Jilin City, Jilin Province, China.

Post Code: 132013

Tel: 86-432-64678411

Fax: 86-432-64665812

Web Site: www.hwdz.com.cn

