



MC08N005

主要参数 MAIN CHARACTERISTICS

I_D	135A
V_{DSS}	85V
R_{dson_max} ($V_{gs}=10V$)	5.5m Ω
Q_g -typ	74.6nC

用途

- 电信与工业领域隔离 DC/DC 转换
- 同步整流领域 DC/DC 与 AC/DC 转换

产品特性

- 低栅极电荷
- 低 R_{dson}
- 开关速度快
- 产品全部经过雪崩测试
- 高抗 dv/dt 能力
- RoHS 产品

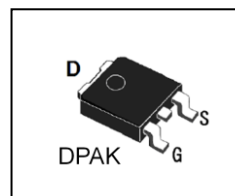
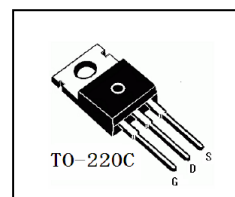
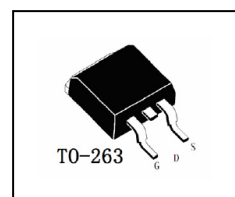
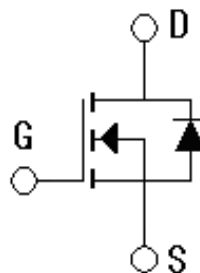
APPLICATIONS

- Isolated DC/DC Converters in Telecom and Industrial
- Synchronous Rectification in DC/DC and AC/DC Converters

FEATURES

- Low gate charge
- Low R_{dson}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product

封装 Package



订货信息 ORDER MESSAGE

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-编带 Halogen-Reel	无卤-编带 Halogen-Free-Reel		
MC08N005-C-B	MC08N005--C-BR	N/A	N/A	MC08N005	TO-220C
MC08N005-S-B	MC08N005--S-BR	MC08N005--S-A	MC08N005--S-AR	MC08N005	TO-263
MC08N005-R-B	MC08N005--R-BR	MC08N005--R-A	MC08N005-R-AR	MC08N005	DPAK

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
		MC08N005 TO-220C/263	MC08N005 DPAK	
最高漏极-源极直流电压 Drain-Source Voltage	V_{DSS}	85		V
连续漏极电流 Drain Current -continuous	I_D $T=25^\circ\text{C}$	135*		A
	I_D $T=100^\circ\text{C}$	90*		A
最大脉冲漏极电流 (注1) Drain Current - pulse (note 1)	I_{DM}	540*		A
最高栅源电压 Gate-Source Voltage	V_{GSS}	± 20		V
单脉冲雪崩能量 (注2) Single Pulsed Avalanche Energy (note 2)	E_{AS}	400		mJ
雪崩电流 (注1) Avalanche Current (note 1)	I_{AS}	40		A
耗散功率 Power Dissipation	P_D $T_c=25^\circ\text{C}$ -Derate above 25°C	178	60	W
		1.41	2.07	W/ $^\circ\text{C}$
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$		$^\circ\text{C}$
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	300		$^\circ\text{C}$

*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature



电特性 ELECTRICAL CHARACTERISTICS

项 目 Parameter	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单 位 Units
关态特性 Off –Characteristics						
漏—源击穿电压 Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	85	-	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V,$ $T_C=25^\circ C$	-	-	10	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	$V_{DS}=0V, V_{GS}=20V$	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	$V_{DS}=0V, V_{GS}=-20V$	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D=250\mu A$	2	3	4	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D=40A$	-	4.5	5.5	m Ω
正向跨导 Forward Transconductance	g_{fs}	$V_{DS} = 5V, I_D=50A$ (note 4)	-	90	-	S
动态特性 Dynamic Characteristics						
栅电阻 Gate resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1.0MHz$	-	1.15	-	Ω
输入电容 Input capacitance	C_{iss}	$V_{DS}=40V,$ $V_{GS}=0V,$ $f=1.0MHz$	-	3950	-	pF
输出电容 Output capacitance	C_{oss}		-	665	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	44	-	pF

**电特性 ELECTRICAL CHARACTERISTICS**

开关特性 Switching Characteristics					
延迟时间 Turn-On delay time	$t_{d(on)}$	$V_{DD}=40V, V_{GS}=10V$ $I_D=50A, R_G=3.0\Omega$, (note 3, 4)	-	20.4	- ns
上升时间 Turn-On rise time	t_r		-	81.4	- ns
延迟时间 Turn-Off delay time	$t_{d(off)}$		-	45.0	- ns
下降时间 Turn-Off Fall time	t_f		-	80.8	- ns
栅极电荷总量 Total Gate Charge	Q_g	$V_{DS} = 50V, V_{GS}=10V$ $I_D=40A$ (note 3, 4)	-	74.6	- nC
栅-源电荷 Gate-Source charge	Q_{gs}		-	20.0	- nC
栅-漏电荷 Gate-Drain charge	Q_{gd}		-	24.0	- nC
漏-源二极管特性及最大额定值 Drain-Source Diode Characteristics and Maximum Ratings					
正向最大连续电流 Maximum Continuous Drain-Source Diode Forward Current	I_S	$T_C=25^\circ C$	-	-	135 A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	$T_C=25^\circ C$	-	-	540 A
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	$T_J=25^\circ C, V_{GS}=0V, I_{SD}=40A$	-	0.9	1.3 V
反向恢复时间 Reverse recovery time	t_{rr}	$V_{GS}=0V, I_S=50A$ $dI_F/dt=100A/\mu s$ (note 4)	-	45.6	- ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		-	45.7	- nC

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	最大 Max		单 位 Unit
		MC08N005-DPAK	MC08N005-TO-220C /TO-263	
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	2.07	0.7	$^\circ C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	94.7	62.5	$^\circ C/W$

注释:

1: 脉冲宽度由最高结温限制

2: $I_{AS}=40A, V_{DD}=20V, V_{GS}=10V, L=0.5mH, R_G=25\Omega$, 起始结温 $T_J=25^\circ C$ 3: 脉冲测试: 脉冲宽度 $\leq 300\mu s$, 占空比 $\leq 2\%$

4: 基本与工作温度无关

Notes:

1: Pulse width limited by maximum junction temperature

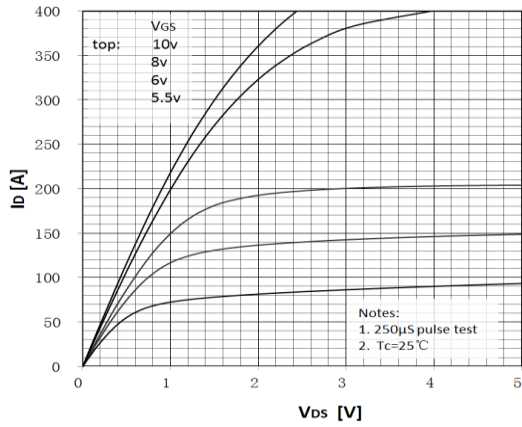
2: $I_{AS}=40A, V_{DD}=20V, V_{GS}=10V, L=0.5mH, R_G=25\Omega$, Starting $T_J=25^\circ C$ 3: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

4: Essentially independent of operating temperature

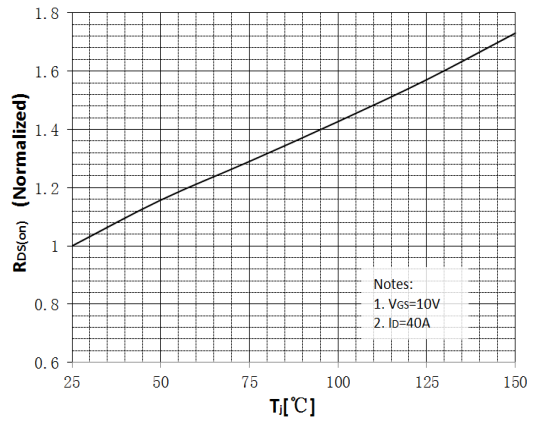


特征曲线 ELECTRICAL CHARACTERISTICS (curves), $T_J = 25^\circ\text{C}$

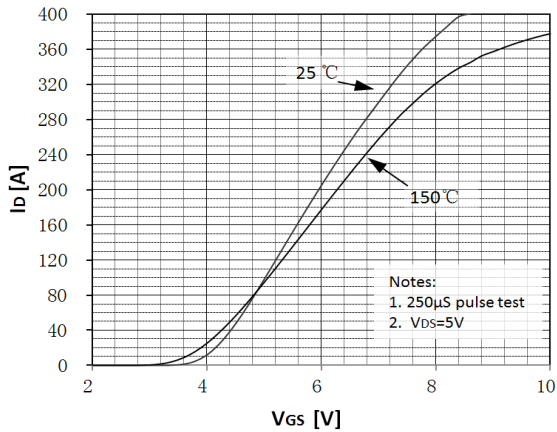
On-Region Characteristics



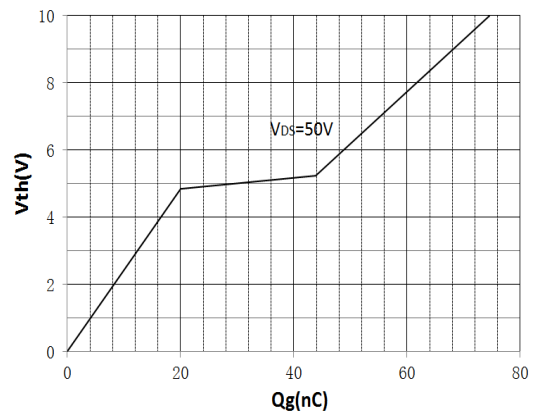
RDSON vs. Tj



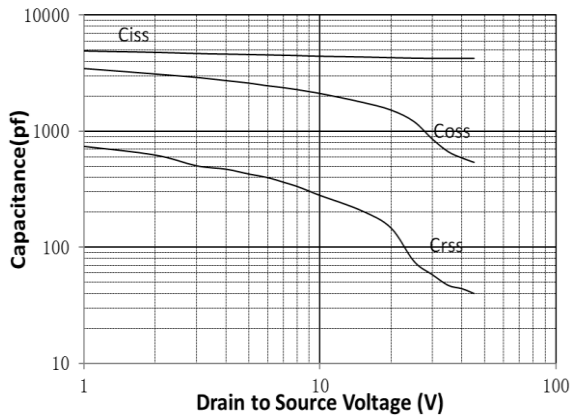
Transfer Characteristics



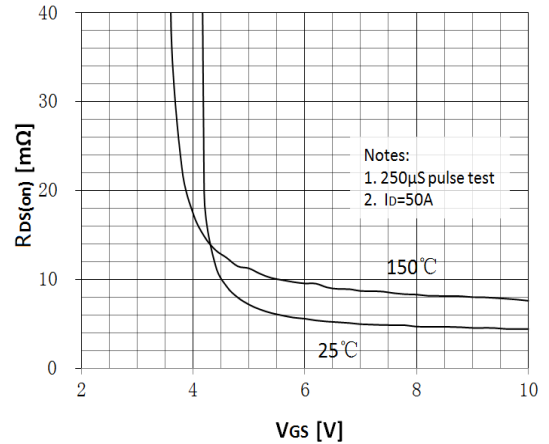
Gate Charge Characteristics



Capacitance Characteristics

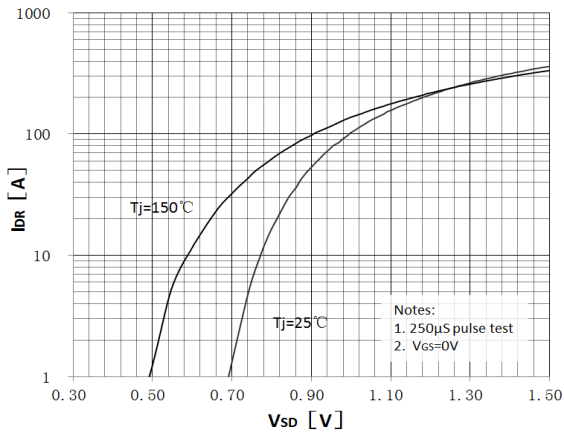


Drain-Source on resistance

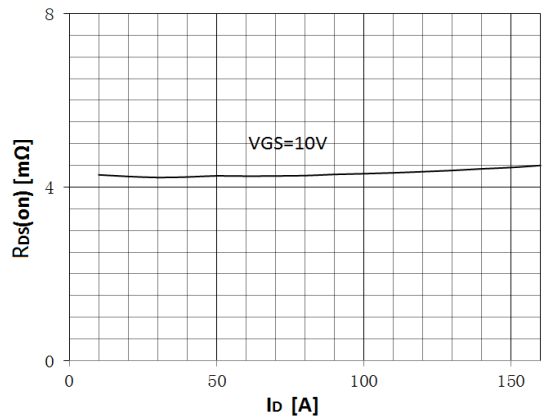




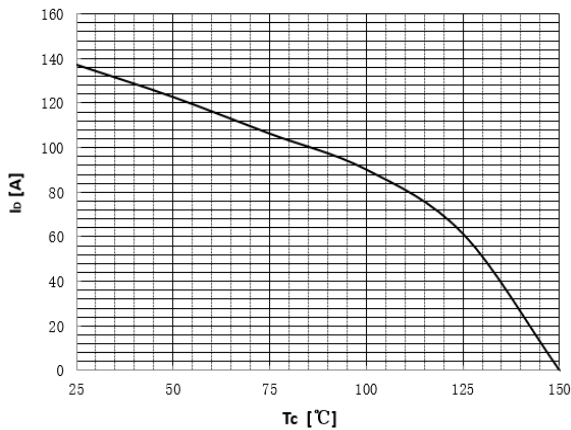
Body Diode Forward Voltage Variation vs. Source Current and Temperature



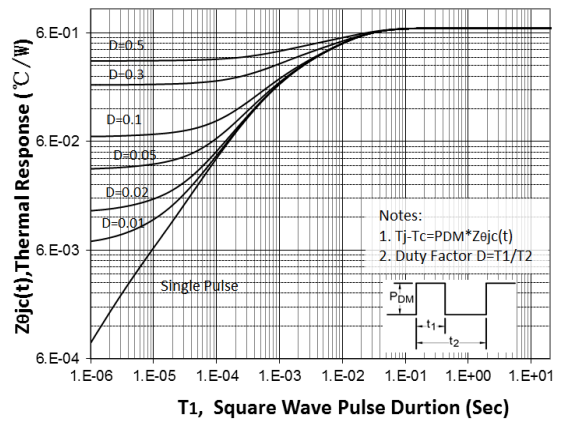
On-Resistance Variaton vs. Drain Current and Gate Voltage



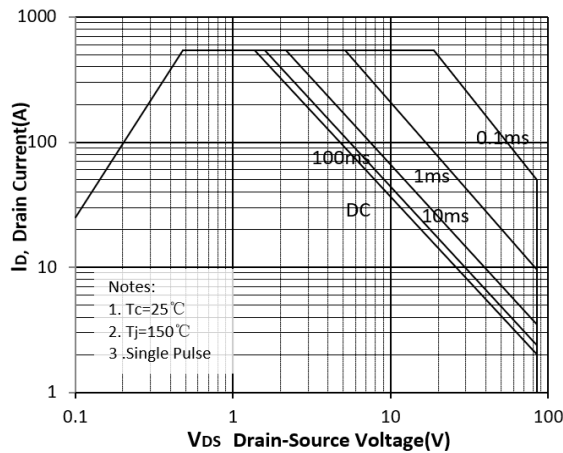
Drain Current Dissipation vs Tc



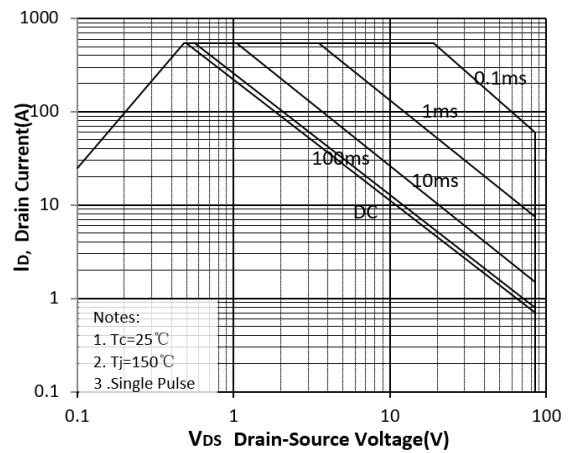
Transient Thermal Impedance For MC08N005 TO-220C/263



Maximum Safe Operation For MC08N005 TO-220C/263

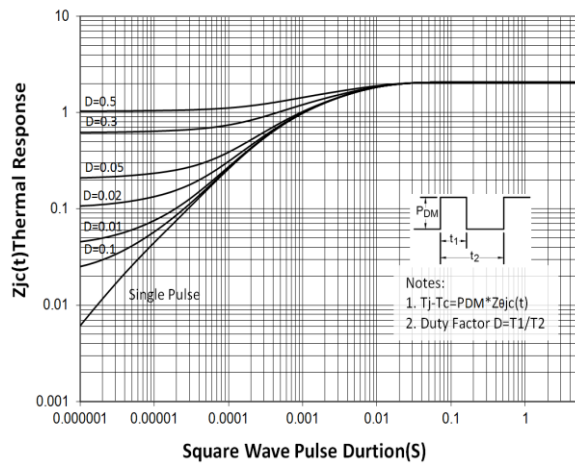


Maximum Safe Operation For MC08N005 DPAK





**Transient Thermal Impedance
For MC08N005 DPAK**

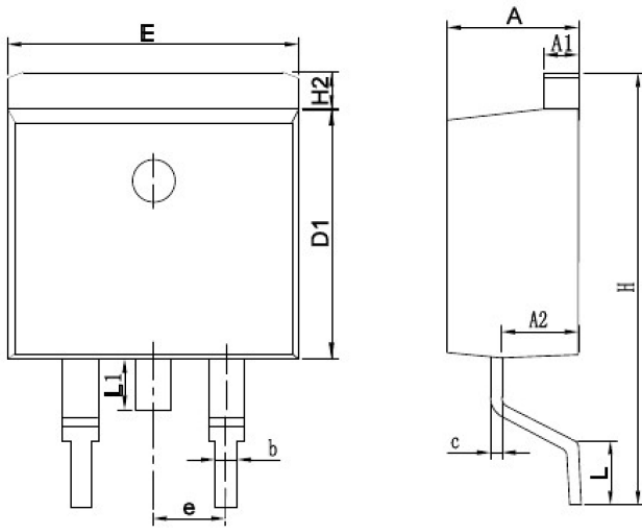




外形尺寸 PACKAGE MECHANICAL DATA

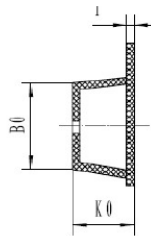
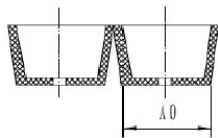
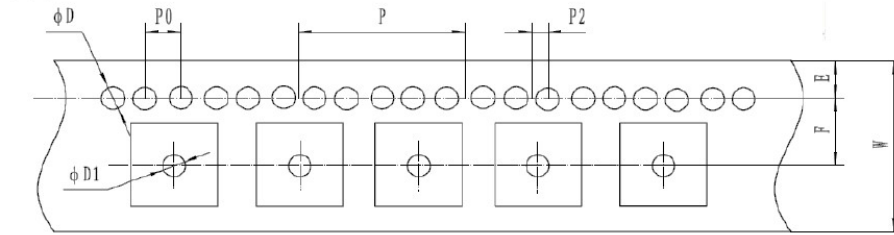
TO-263

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

编带 REEL



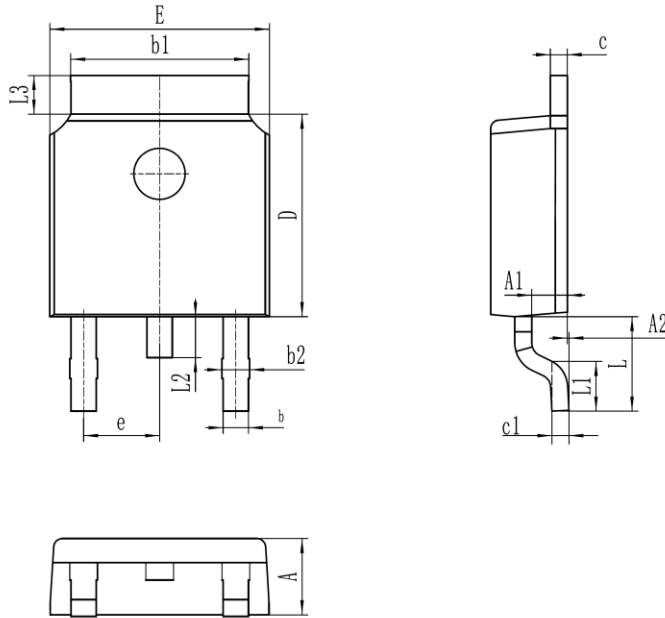
产品尺寸规格 (UNIT: mm)				
规格	W	AO	E	D
尺寸	24 ± 0.3	10.9 ± 0.1	1.75 ± 0.1	1.5 ± 0.1/-0
规格	D1	P0	P	T
尺寸	1.5 ± 0.1/-0	4 ± 0.1	2 ± 0.1	16 ± 0.1
规格	K0	BO		
尺寸	4.9 ± 0.1	16.0 ± 0.1		



外形尺寸 PACKAGE MECHANICAL DATA

DPAK

单位 Unit: mm

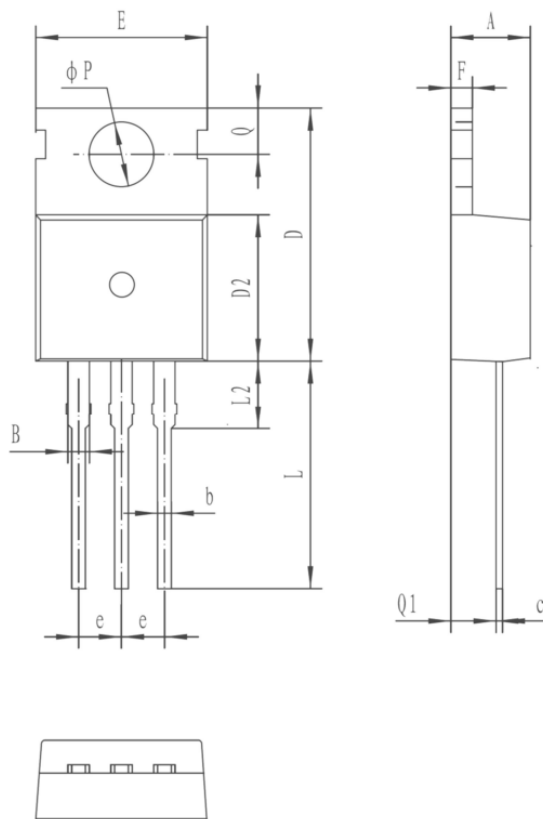


SYMBOL	mm	
	MIN	MAX
A	2.15	2.45
A1	0.95	1.25
A2	0.00	0.17
b	0.56	0.75
b1	5.15	5.45
b2	0.60	0.90
c	0.76	0.90
c1	0.45	0.65
D	5.80	6.40
E	6.30	6.90
e	2.30BSC	
L	2.50	3.30
L1	1.20	1.80
L2	0.50	1.10
L3	1.10	1.50



外形尺寸 PACKAGE MECHANICAL DATA

TO-220C



符号 symbol	MIN	MAX
A	4.30	4.70
B	1.10	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



注意事项

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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.

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