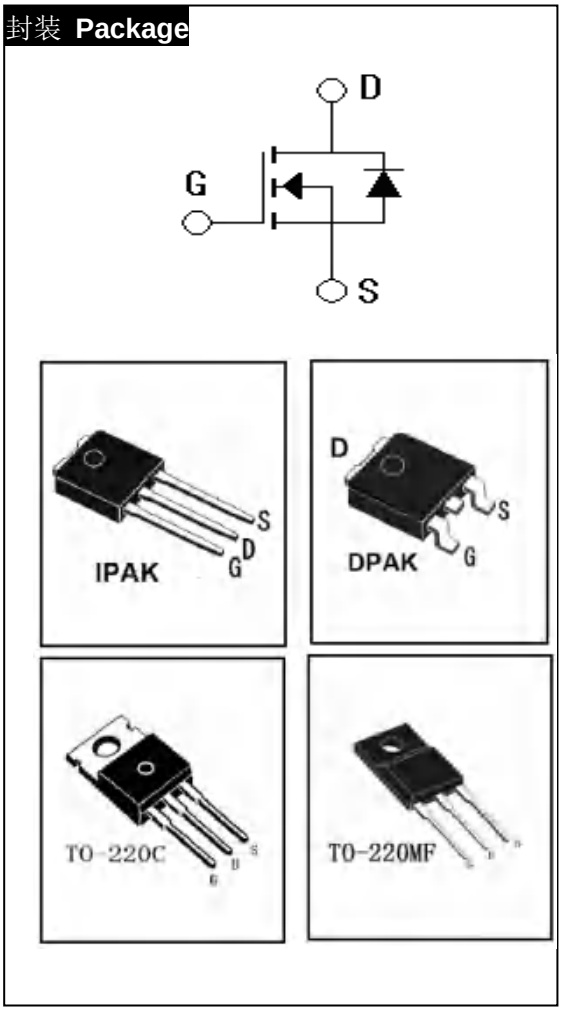
PHJCS620T

主要参数 MAIN CHARACTERISTICS

ID	5A
VDSS	200 V
Rdson-max （@Vgs=10V）	0.8Ω
Qg-typ	7.39nC

封装 **Package**



用途

- 高频开关电源
- 电子镇流器
- UPS 电源

APPLICATIONS

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- UPS

产品特性

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

FEATURES

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

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		
JCS620VT-V-B	JCS620VT-V-BR	N/A	N/A	JCS620VT	IPAK
JCS620RT-R-B	JCS620RT-R-BR	JCS620RT-R-A	JCS620RT-R-AR	JCS620RT	DPAK
JCS620CT-C-B	JCS620CT-C-BR	N/A	N/A	JCS620CT	TO-220C
JCS620FT-F-B	JCS620FT-F-BR	N/A	N/A	JCS620FT	TO-220MF

绝对最大额定值 **ABSOLUTE RATINGS** (Tc=25℃)

项　　目 **Parameter**	符　号 **Symbol**	数　值 **Value**		单　位 **Unit**
		JCS620VT/RT/CT	**JCS620FT**	
最高漏极－源极直流电压 Drain-Source Voltage	V_{DSS}	200		V
连续漏极电流 Drain Current -continuous	I_D T=25℃	5	5*	A
	T=100℃	4	4*	A
最大脉冲漏极电流（注 1） Drain Current -pulse （note 1）	I_{DM}	20	20*	A
最高栅源电压 Gate-Source Voltage	V_{GSS}	±30		V
单脉冲雪崩能量（注 2） Single Pulsed Avalanche Energy（note 2）	E_{AS}	31.25		mJ
雪崩电流（注 1） Avalanche Current（note 1）	I_{AR}	5		A
重复雪崩能量（注 1） Repetitive Avalanche Current （note 1）	E_{AR}	8.3	3.6	mJ
二极管反向恢复最大电压变化速率（注 3） Peak Diode Recovery dv/dt （note 3）	dv/dt	5		V/ns
耗散功率 Power Dissipation	P_D T_C=25℃	83	36	W
	-Derate above 25℃	0.67	0.29	W/℃
最高结温及存储温度 Operating and Storage Temperature Range	T_J，T_{STG}	-55～+150		℃
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	300		℃

*漏极电流由最高结温限制

*Drain current limited by maximum junction temperature

电特性 ELECTRICAL CHARACTERISTIC

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						
漏一源击穿电压 Drain-Source Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	200	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	I_D=250μA, referenced to 25℃	-	0.2	-	V/℃
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=200V, V_{GS}=0V, T_C=25℃	-	-	1	μA
		V_{DS}=160V, T_C=125℃	-	-	10	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	V_{DS}=0V, V_{GS} =30V	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	V_{DS}=0V, V_{GS} =-30V	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D=250μA	2.0	-	4.0	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =10V , I_D=2.5A	-	0.55	0.8	Ω
正向跨导 Forward Transconductance	g_{fs}	V_{DS} = 40V , I_D=2.5A（note 4）	-	2.4	-	S
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	V_{DS}=25V, V_{GS} =0V, f=1.0MHz	-	216		pF
输出电容 Output capacitance	C_{oss}		-	58		pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	9.3		pF

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
开关特性 Switching –Characteristics						
延迟时间 Turn-On delay time	t_{d}(on)	V_{DD}=100V,I_D=5A,R_G=25Ω	-	11.5	17	ns
上升时间 Turn-On rise time	t_r	V_{GS} =10V	-	23.5	35	ns
延迟时间 Turn-Off delay time	t_{d}(off)	（note 4，5）	-	26.4	40	ns
下降时间 Turn-Off Fall time	t_f		-	10.7	16	ns
栅极电荷总量 Total Gate Charge	Q_g	V_{DS} =160V ,	-	7.39	10	nC
栅一源电荷 Gate-Source charge	Q_{gs}	I_D=5A	-	1.89	-	nC
栅一漏电荷 Gate-Drain charge	Q_{gd}	V_{GS} =10V（note 4，5）	-	4.19	-	nC
漏一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		-	-	5	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	20	A
正向最大连续电流 Maximum Continuous Drain-Source Diode Forward Current	V_{SD}	V_{GS}=0V, I_S=5A	-		1.4	V
反向恢复时间 Reverse recovery time	t_{rr}	V_{GS}=0V, I_S=5A		120		ns
反向恢复电荷 Reverse recovery charge	Q_{rr}	dI_F/dt=100A/μs (note 4)		430		nC

热特性 THERMAL CHARACTERISTIC

项　　目 Parameter	符　号 Symbol	最大值 Value		单　位 Unit
		JCS620VT/RT/CT	JCS620FT	
结到管壳的热阻 Thermal Resistance, Junction to Case	Rth(j-c)	1.5	3.5	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	Rth(j-A)	62.5		℃/W

注：

1：脉冲宽度由最高结温限制

2：L=2.5mH, I_{AS}=5A, V_{DD}=50V,　R_G=25 Ω,起始结温 T_J=25℃

3：I_{SD} ≤5A,di/dt ≤200A/μs, VDD≤BV_{DSS},起始结温 T_J=25℃

4：脉冲测试：脉冲宽度≤300μs,占空比≤2%

5：基本与工作温度无关

Notes:

1：Pulse width limited by maximum junction temperature

2：L=2.5mH, I_{AS}=5A, V_{DD}=50V, R_G=25 Ω,Starting T_J=25℃

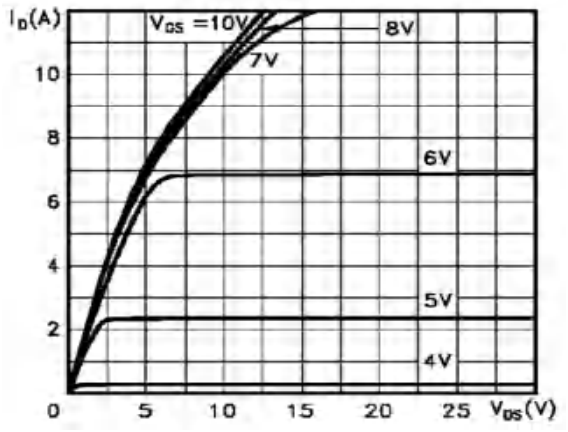
3：I_{SD} ≤5A,di/dt ≤200A/μs, VDD≤BV_{DSS}, Starting T_J=25℃

4：Pulse Test：Pulse Width ≤300μs, Duty Cycle≤2%

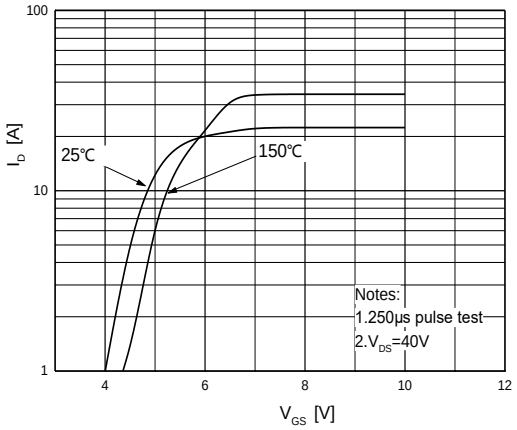
5：Essentially independent of operating temperature

特征曲线　ELECTRICAL CHARACTERISTICS (curves)

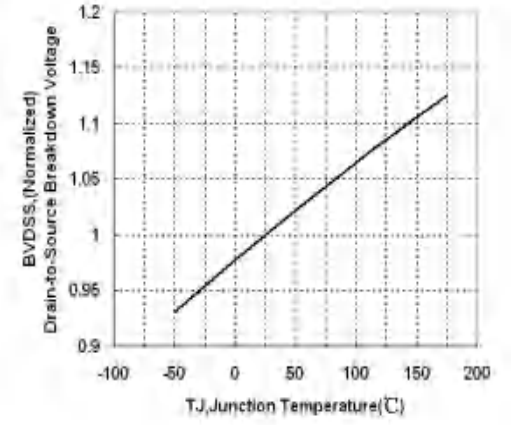
Typical Output Characteristics, TC = 25 °C



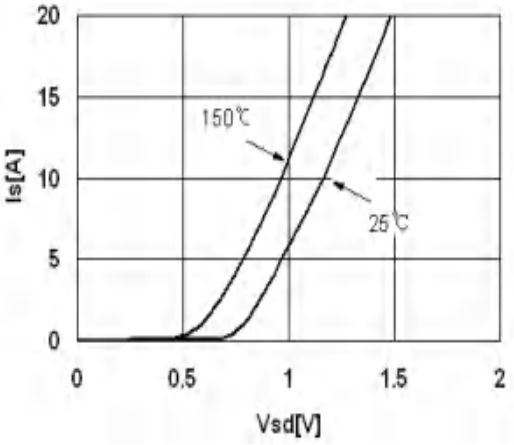
Transfer Characteristics



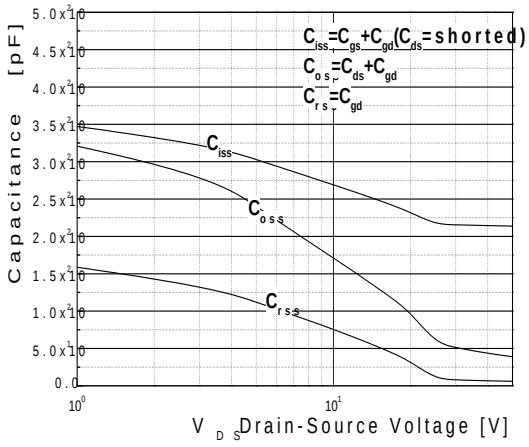
Breakdown Voltage Variation vs. Temperature



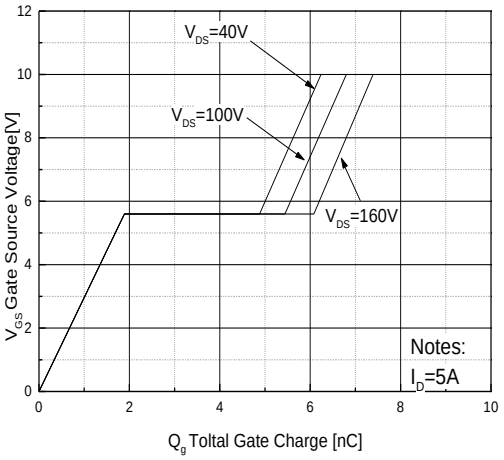
Body Diode Forward Voltage Variation vs. Source Current and Temperature



Capacitance Characteristics

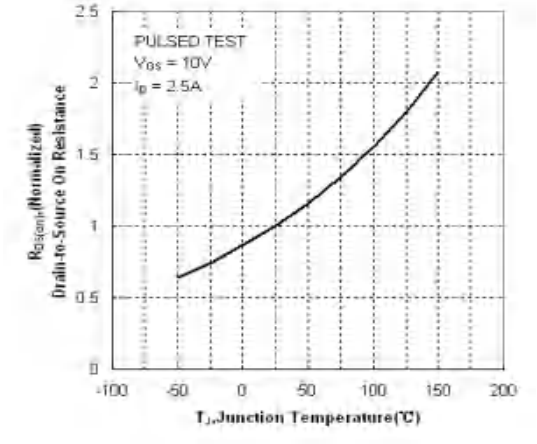


Gate Charge Characteristics

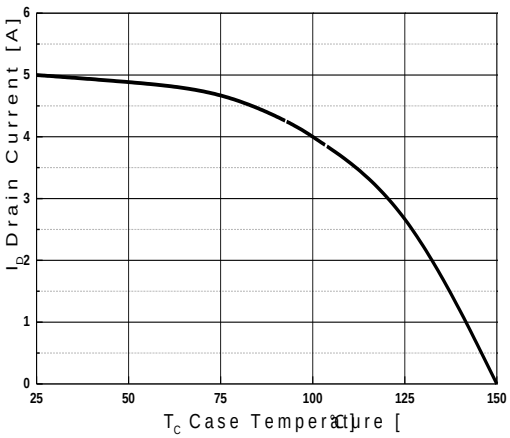


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

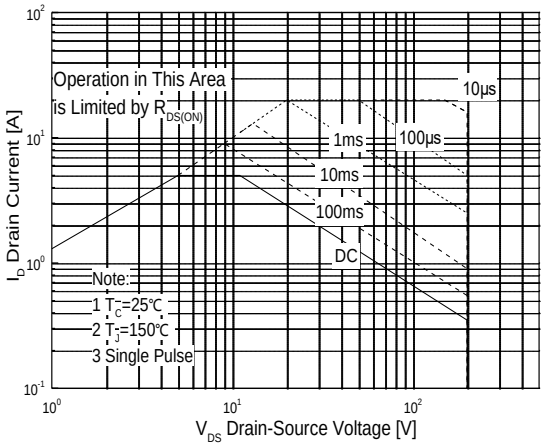
On-Resistance Variation vs. Temperature



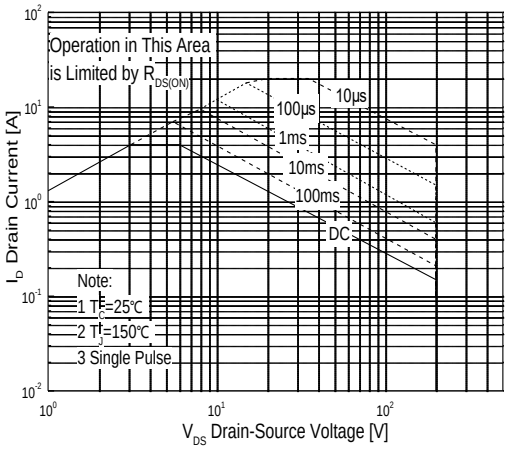
Maximum Drain Current vs. Case Temperature



Maximum Safe Operating Area For JCS620CT/VT/RT

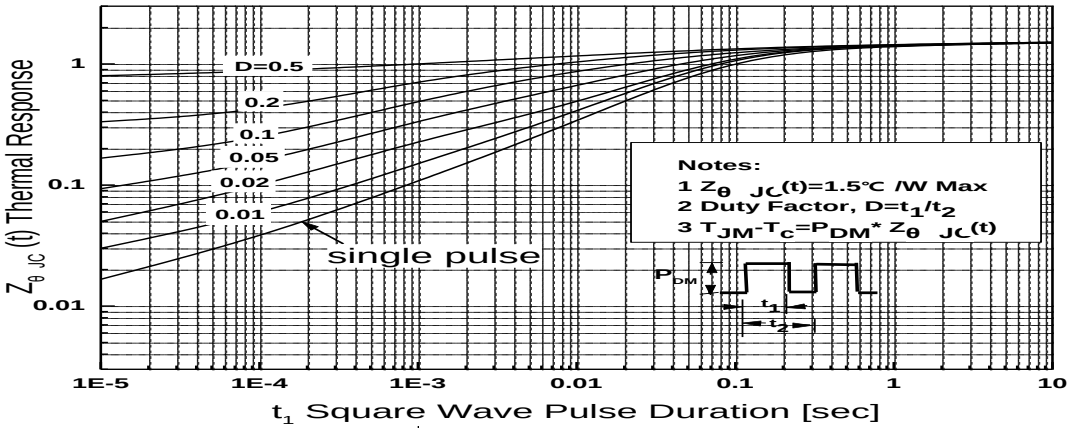


Maximum Safe Operating Area For JCS620FT

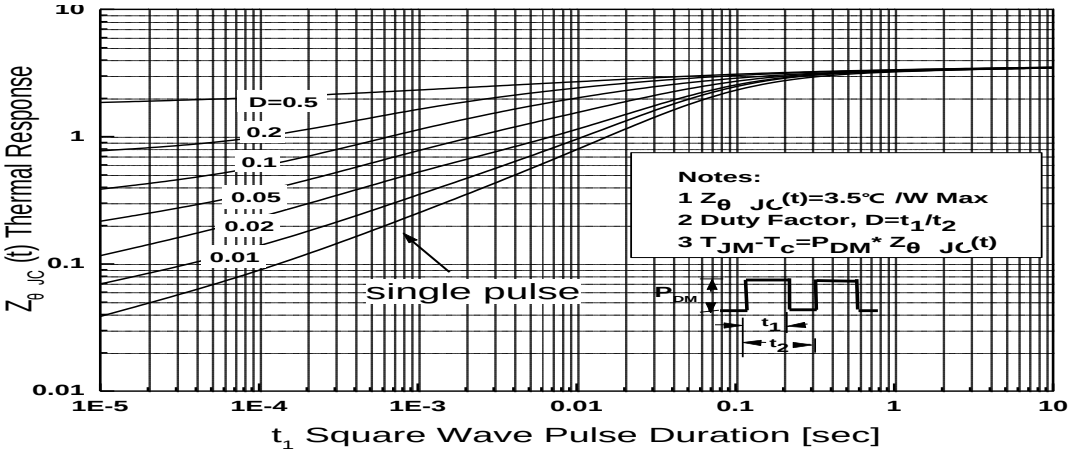


特征曲线　ELECTRICAL CHARACTERISTICS (curves)

Transient Thermal Response Curve
For JCS620CT/VT/RT



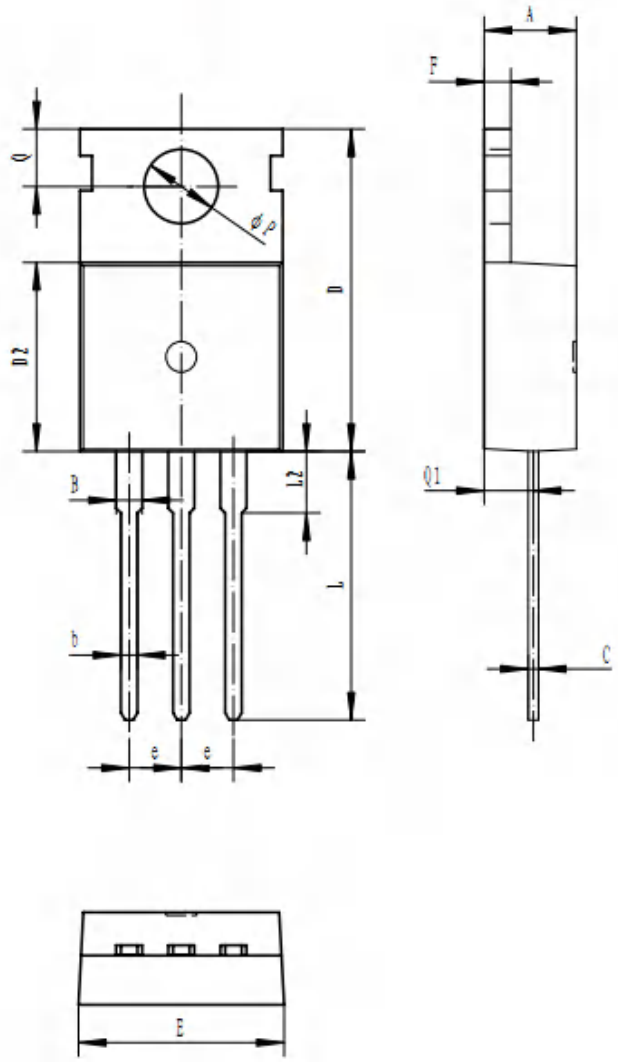
Transient Thermal Response Curve
For JCS620FT



外形尺寸 **PACKAGE MECHANICAL DATA**

TO-220C

单位 Unit：mm

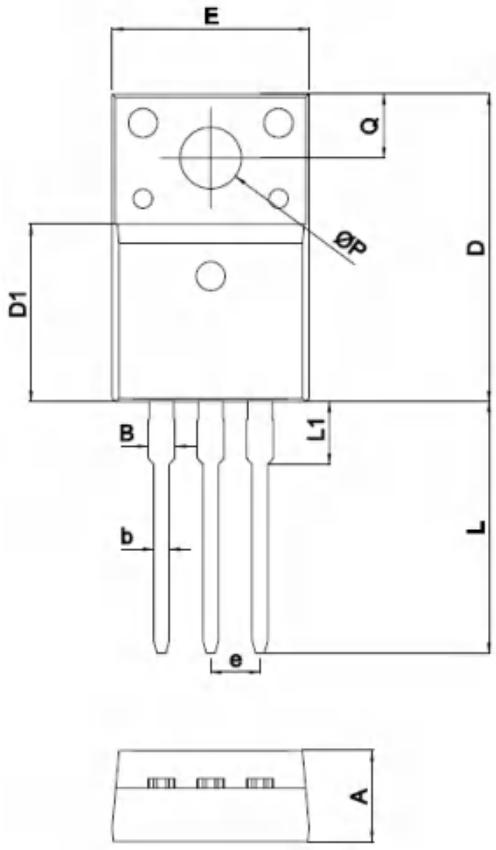


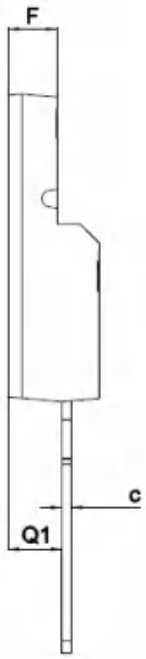
符号 symbol	MIN	MAX
A	4.30	4.70
B	1.22	1.40
b	0.70	0.95
c	0.40	0.65
D	15.20	16.20
D2	9.00	9.40
E	9.70	10.10
e	2.39	2.69
F	1.25	1.40
L	12.60	13.60
L2	2.80	3.20
Q	2.60	3.00
Q1	2.20	2.60
P	3.50	3.80

外形尺寸 **PACKAGE MECHANICAL DATA**

TO-220MF

单位 Unit：mm



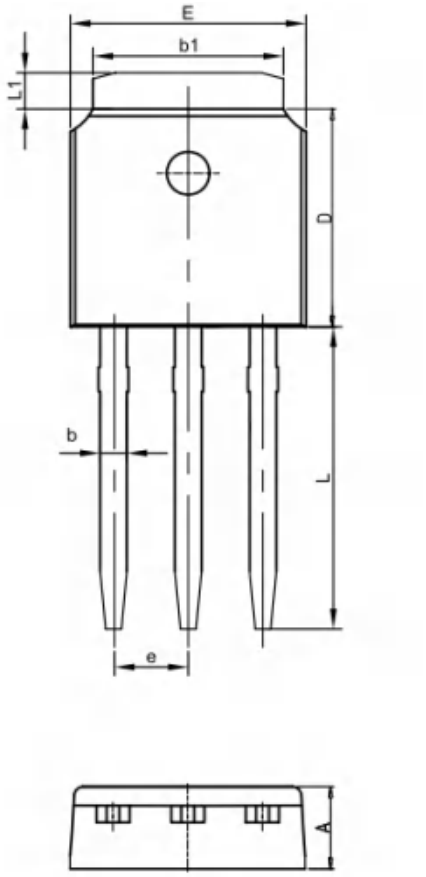


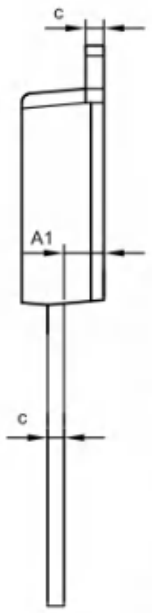
SYMBOL	mm	
	MIN	MAX
A	4.5	4.9
B		1.47
b	0.7	0.9
c	0.45	0.60
D	15.67	16.07
D1	9.04	9.20
e	2.54TYPE	
E	9.96	10.36
F	2.34	2.74
L	12.58	13.38
L1	3.13	3.33
Q	3.2	3.4
Q1	2.56	2.96
ΦP	3.08	3.28

外形尺寸 **PACKAGE MECHANICAL DATA**

IPAK

单位 Unit：mm



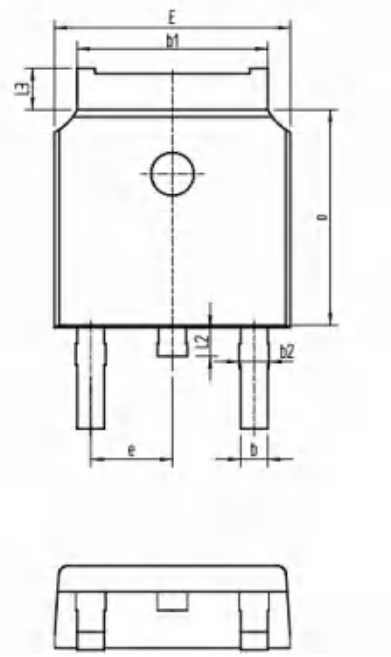


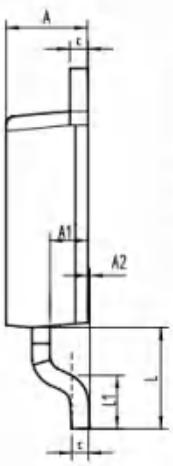
SYMBOL	MM	
	MIN	MAX
A	2.1	2.5
A1	0.87	1.27
b	0.63	0.93
b1	5.13	5.53
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
L	9.10	9.70
e	2.286BSC	
L1	0.82	1.22

外形尺寸 **PACKAGE MECHANICAL DATA**

DPAK

单位 Unit：mm





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