



JT015N065FED/SED

主要参数 MAIN CHARACTERISTICS

I _C	15 A
V _{CE} S	650V
V _{cesat} -typ (@V _{ge} =15V)	1.6V

用途

- 逆变器
- UPS 电源

APPLICATIONS

- General purpose inverters
- UPS

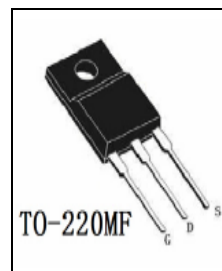
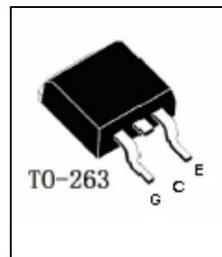
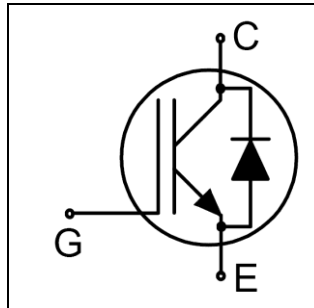
产品特性

- 低栅极电荷
- Trench FS 技术,
- 通态压降, V_{CE}(sat), typ = 1.6V @ I_C = 15A and TC = 25°C
- RoHS 产品

FEATURES

- Low gate charge
- Trench FS Technology,
- saturation voltage: V_{CE}(sat), typ = 1.6V @ I_C = 15A and TC = 25°C
- 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 Non halogen-Tube	有卤-编带 Halogen-Reel	无卤-编带 Non halogen-Reel		
JT015N065SED-S-B	JT015N065SED-S-BR	JT015N065SED-S-A	JT015N065SED-S-AR	JT015N065SED	TO-263
JT015N065FED-F-B	JT015N065FED-F-BR	N/A	N/A	JT015N065FED	TO-220MF



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
		JT015N065FED	JT015N065SED	
最高集电极—发射极直流电压 Collector-Emmitter Voltage	V_{CES}	650		V
*连续集电极电流 Collector Current-continuous	I_C	30 ($T=25^{\circ}\text{C}$)		A
		15($T=100^{\circ}\text{C}$)		A
最大脉冲集电极极电流（注1） Collector Current – pulse (note 1)	I_{CM}	45		A
最高栅极发射极电压 Gate-Emmitter Voltage	V_{GES}	± 20		V
Turn-off safe area	-	60		A
耗散功率 Power Dissipation	P_D $T_C=25^{\circ}\text{C}$	37	208	W
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		$^{\circ}\text{C}$

*连续集电极电流由最高结温限制

*Collector 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						
集电极—发射极击穿电压 Collector-Emmitter Voltage	BV_{CES}	$I_C=500\mu A, V_{GE}=0V$	650	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	$\Delta BV_{CES}/\Delta T_J$	$I_C=1mA$, referenced to $25^\circ C$	-	0.5	-	$V/^\circ C$
零栅压下集电极漏电流 Zero Gate Voltage Collector Current	I_{CES}	$V_{CE}=650V, V_{GE}=0V, T_C=25^\circ C$	-	-	10	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GESF}	$V_{CE}=0V, V_{GE}=20V$	-	-	200	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GESR}	$V_{CE}=0V, V_{GE}=-20V$	-	-	-200	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}, I_C=250\mu A$	5.0	-	7.0	V
饱和压降 Collector-Emmitter saturation Voltage	V_{CESAT}	$V_{GE}=15V, I_C=15A, T_C=25^\circ C$	-	1.6	2.0	V
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V, f=1.0MHz$	-	880	-	pF
输出电容 Output capacitance	C_{oes}		-	96.5	-	pF
反向传输电容 Reverse transfer capacitance	C_{res}		-	21.5	-	pF
栅极电荷总量 Total Gate Charge	Q_g	$V_{CC}=400V, I_C=15A, R_G=10\Omega, V_{GE}=15V, T_C=25^\circ C$	-	32.9	-	nC
栅极-反射极 Gate to emitter charge	Q_{ge}		-	7.5	-	
栅极-集电极 Gate to collector charge	Q_{gc}		-	14.2	-	
栅极电阻-Gate resistance	R_g	$f=1MHz$, open collector	-	1.75	-	Ω
短路电流-short current	I_{sc}	$V_{GE}=15V, V_{CE}=360V, t \leq 10\mu s$	-	75	-	A





电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching 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
开启延迟时间 Turn-On delay time	$t_{d(on)}$	$V_{CC}=400V, I_c=15A, R_G=12\Omega$ $V_{GE}=15V$ $T_C=25^\circ C$	-	12	-	ns
上升时间 Turn-On rise time	t_r		-	16	-	ns
关断延迟时间 Turn-Off delay time	$t_{d(off)}$		-	58	-	ns
下降时间 Turn-Off Fall time	t_f		-	28	-	ns
开通损耗 Turn-On energy	Eon		-	0.29	-	mJ
关断损耗 Turn-off energy	Eoff		-	0.18	-	mJ
总开关损耗 Total switching energy	Etot		-	0.47	-	mJ
开启延迟时间 Turn-On delay time	$t_{d(on)}$	$V_{CC}=400V, I_c=15A, R_G=12\Omega$ $V_{GE}=15V$ $T_C=150^\circ C$	-	12.9	-	ns
上升时间 Turn-On rise time	t_r		-	16.7	-	ns
关断延迟时间 Turn-Off delay time	$t_{d(off)}$		-	82	-	ns
下降时间 Turn-Off Fall time	t_f		-	31	-	ns
开通损耗 Turn-On energy	Eon		-	0.45	-	mJ
关断损耗 Turn-off energy	Eoff		-	0.22	-	mJ
总开关损耗 Total switching energy	Etot		-	0.67	-	mJ

反并联二极管特性及最大额定值 Anti-Parallel Diode Characteristics and Maximum Ratings

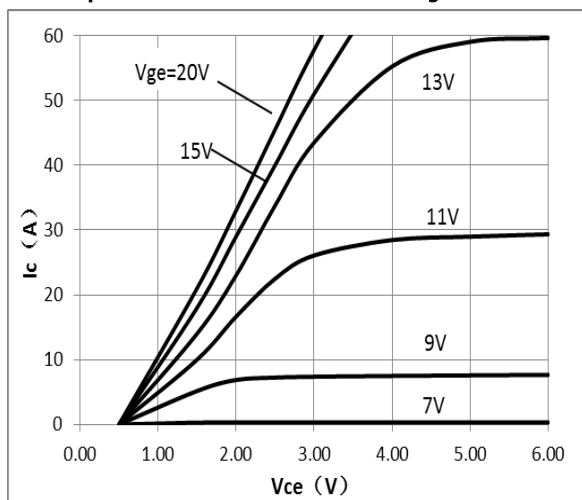
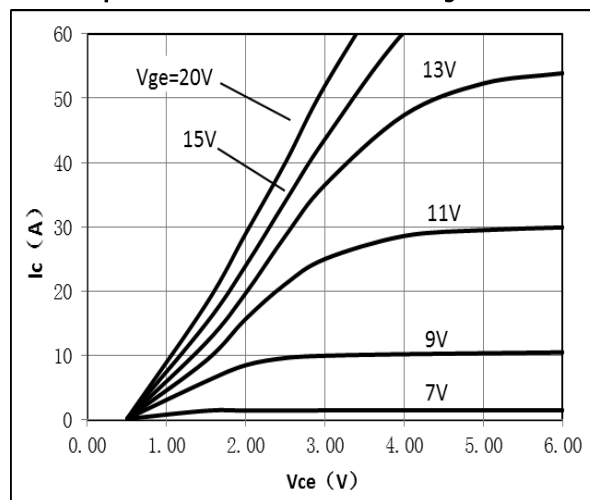
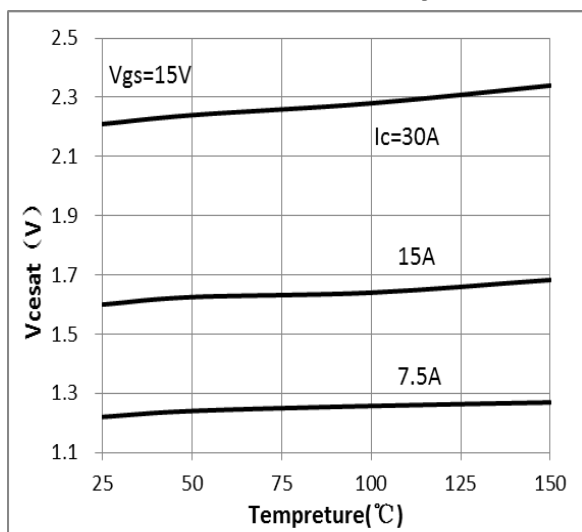
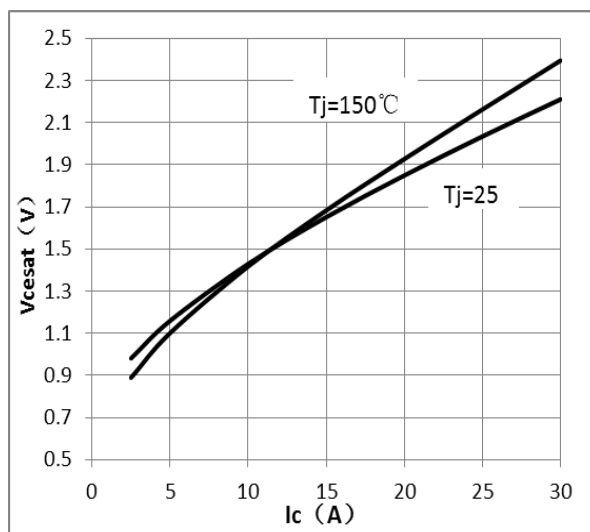
正向压降 Drain-Source Diode Forward Voltage	V_F	$V_{GE}=0V, I_S=15A$	-	1.4	2.2	V
反向恢复时间 Diode Reverse recovery time	t_{rr}	$V_{GE}=0V, V_R=400V, I_F=15A$ $dI_F/dt=1000A/\mu s$ (note 4) $T_C=25^\circ C$	-	150	-	ns
反向恢复电荷 Diode Reverse recovery charge	Qrr		-	1.24	-	nC
反向恢复电流 Diode Reverse recovery Current	I_{RRM}		-	15.5	-	A

项 目 Parameter	符 号 Symbol	典型 Typ		单 位 Unit
		JT015N065FED	JT015N065SED	
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	3.3	0.6	$^\circ C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	62.5	62.5	$^\circ C/W$

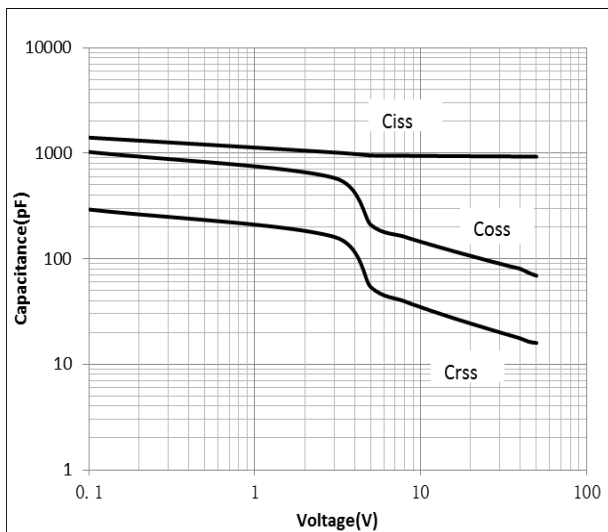




特征曲线 ELECTRICAL CHARACTERISTICS (curves)

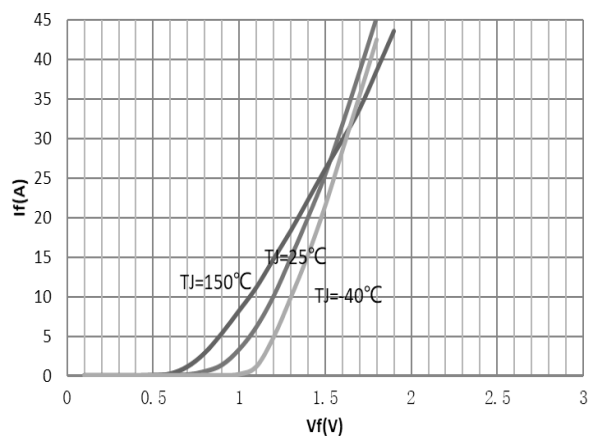
Output Characteristics $T_j=25^{\circ}\text{C}$ Output Characteristics $T_j=150^{\circ}\text{C}$  V_{cesat} vs T_j  V_{cesat} vs I_c 

Capacitance Characteristic

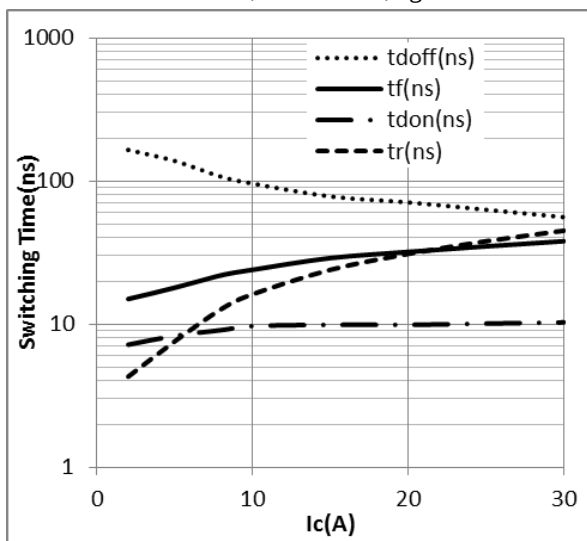
 $V_{ce}=25V, V_{GE}=0V, f=1.0MHz$


Diode Characteristic

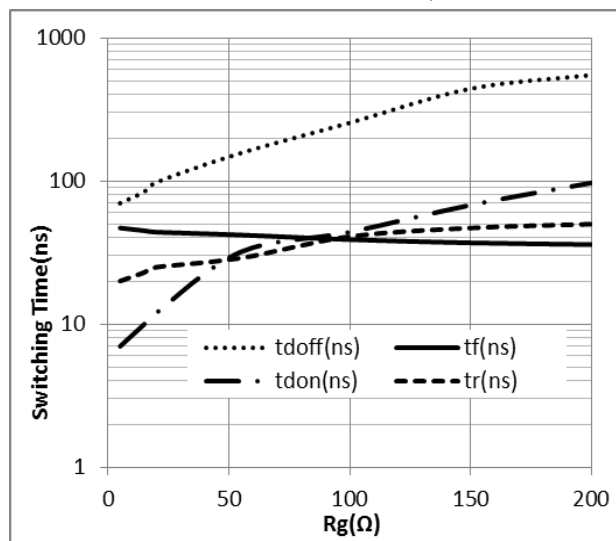
If-Vf曲线



Switching Time vs. IC Tj=150°C

 $V_{GE}=15V, V_{CE}=400V, R_g=12\Omega$


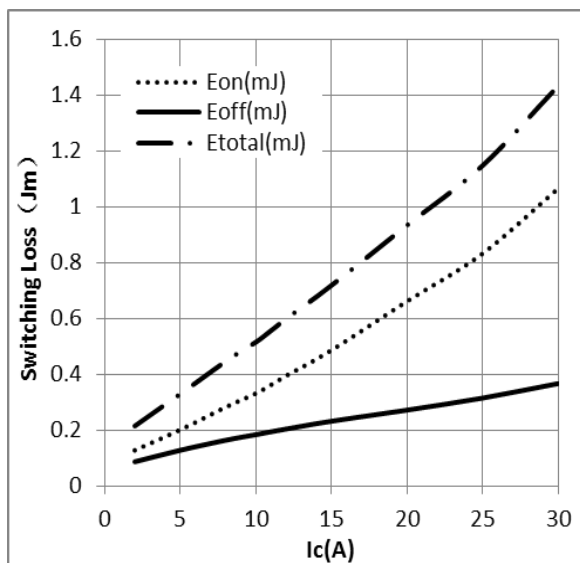
Switching Time vs. Rg Tj=150°C

 $V_{GE}=15V, V_{CE}=400V, IC=15A$




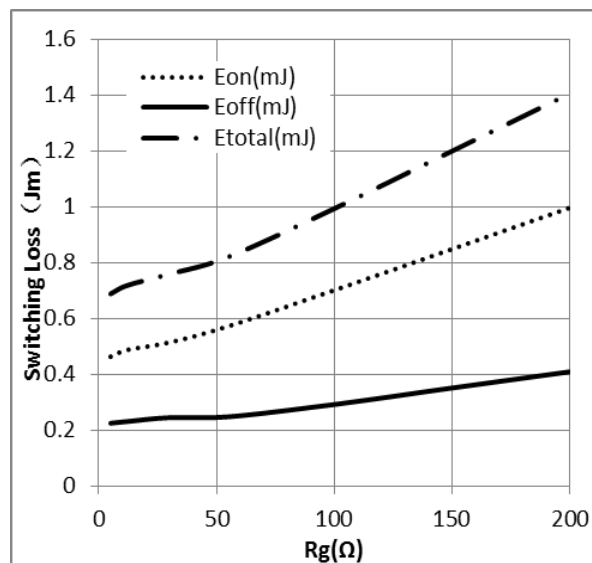
Switching Loss vs. IC Tj=150°C

VGE=15V, VCE=400V, Rg=12 Ω



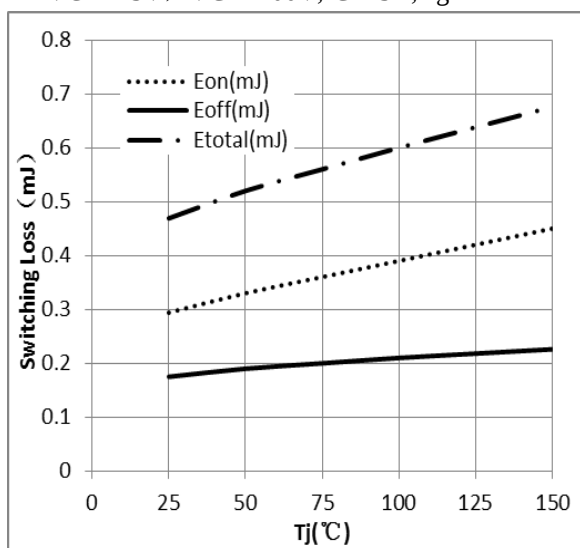
Switching Loss vs. Rg Tj=150°C

VGE=15V, VCE=400V, IC=15A



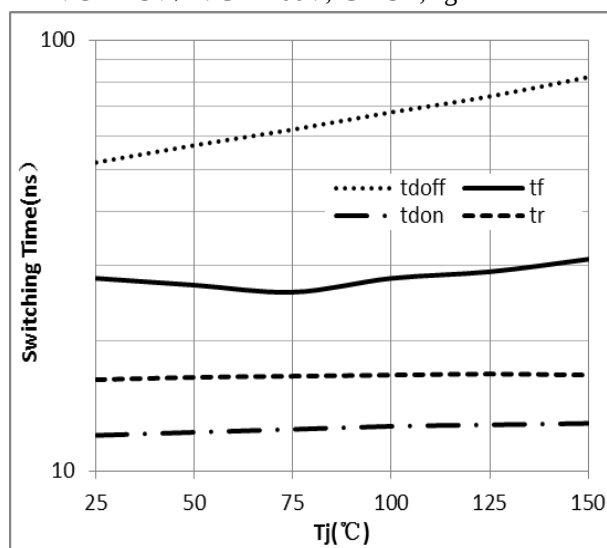
Switching Loss vs. Tj

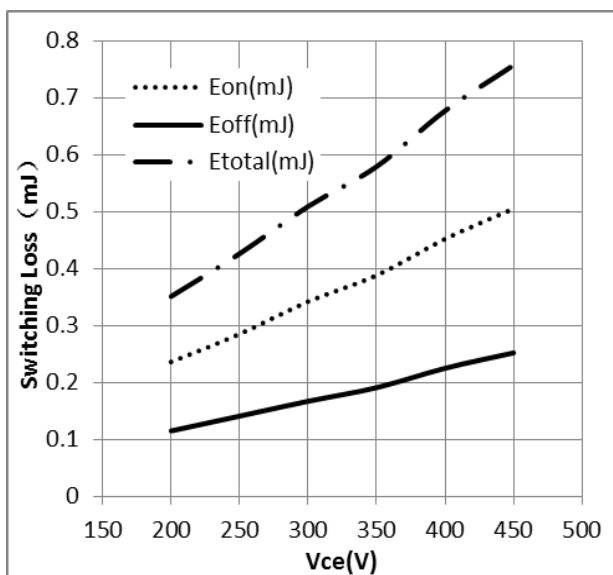
VGE=15V, VCE=400V, IC=15A, Rg=12 Ω



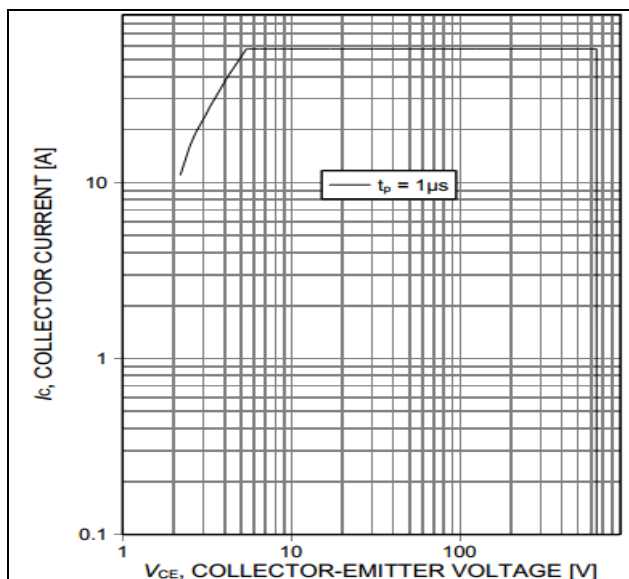
Switching Time vs. Tj

VGE=15V, VCE=400V, IC=15A, Rg=12 Ω

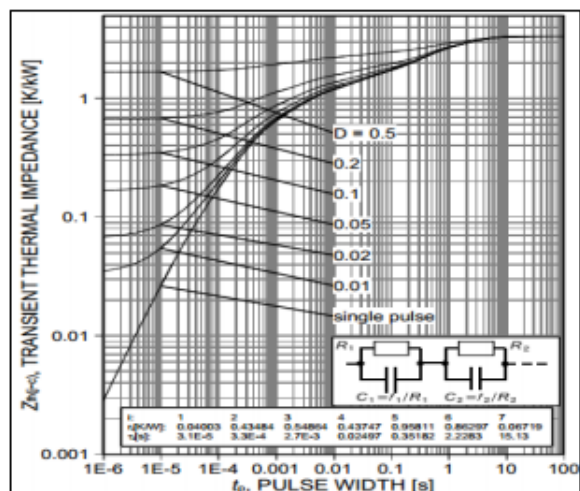


Switching Loss vs. $V_{ce}(V)$ $T_j=150^\circ\text{C}$ $V_{GE}=15V, I_C=15A, R_g=12\ \Omega$ 

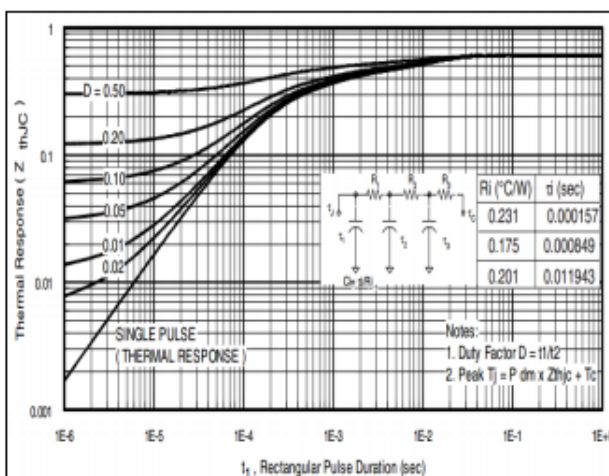
Safe Operating Area



Normalized Maximum Transient Thermal Impedance for TO-220MF



Normalized Maximum Transient Thermal Impedance for TO-263

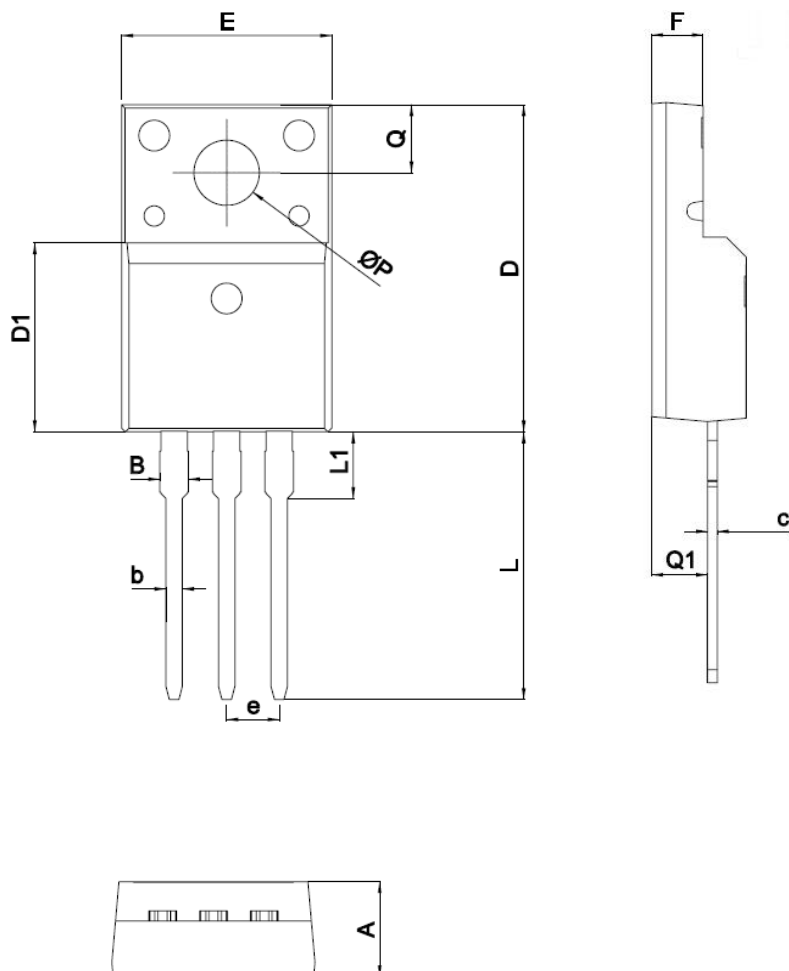




外形尺寸 PACKAGE MECHANICAL DATA

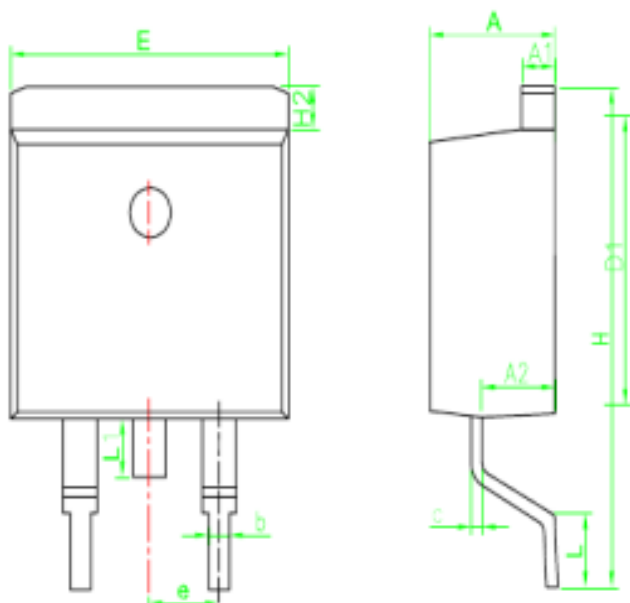
TO-220MF

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





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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