



JT020N120WCD/ABCD/20N120C

主要参数 MAIN CHARACTERISTICS

I _c	20 A
V _{CEs}	1200 V
V _{cesat} (@V _{ge} =15V)	1.8V (type)

用途

- 逆变器
- 电磁炉
- UPS 电源

APPLICATIONS

- General purpose inverters
- Induction heating(IH)
- UPS

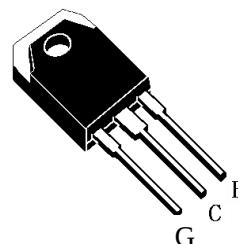
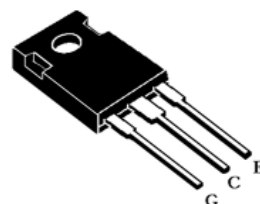
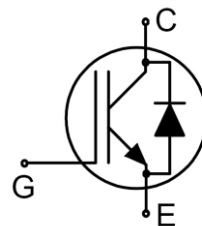
产品特性

- 低栅极电荷
- FS 技术
- 通态压降, V_{CE(sat)}, typ
= 1.8V @ I_C = 20A
and T_C = 25°C
- RoHS 产品

FEATURES

- Low gate charge
- FS Technology
- saturation voltage:
V_{CE(sat)}, typ = 1.8V @
I_C = 20A and T_C = 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	无卤素 Halogen Free	包装 Packaging	器件重量 Device Weight
JT020N120WCD	JT020N120WCD	TO-247	有卤 No	条管 Tube	6 g(typ)
JT020N120ABCD	JT020N120ABCD	TO-3PB	有卤 No	条管 Tube	6 g(typ)
20N120C	20N120	TO-247	有卤 No	条管 Tube	6 g(typ)





JT020N120WCD/ABCD/20N120C

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
		JT020N120WCD/ABCD/20N120C	
最高集电极—发射极直流电压 Collector-Emmitter Voltage	V_{CES}	1200	V
连续集电极极电流 Drain Current-continuous	I_C $T=25^{\circ}C$	40	A
	$T=100^{\circ}C$	20	A
最大脉冲集电极极电流（注1） Collector Current – pulse (note 1)	I_{CM}	60	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 $T_C=25^{\circ}C$	150	W
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^{\circ}C$
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	300	$^{\circ}C$

*漏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	最大 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}	$I_C=500\mu A, V_{GS}=0V$	1200	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	$\Delta BV_{CES}/\Delta T_J$	$I_C=1mA$, referenced to $25^\circ C$	-	0.6	-	V/ $^\circ C$
零栅压下集电极漏电流 Zero Gate Voltage Collector Current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V, T_C=25^\circ C$	-	-	0.2	mA
		$T_C=100^\circ C$			2	mA
		$T_C=150^\circ C$	-	-	2.5	mA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GESF}	$V_{CE}=0V, V_{GE}=20V$	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GESR}	$V_{CE}=0V, V_{GE}=-20V$	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}, I_C=600\mu A$	4.5	-	6.5	V
饱和压降 Collector-Emmitter saturation Voltage	V_{CESAT}	$V_{GE}=15V, I_C=20A, T_C=25^\circ C$	-	1.8	2.45	V
		$T_C=125^\circ C$	-	2.0	-	
		$T_C=150^\circ C$	-	2.1	-	
短路电流（注2） Short Collector current（Note 2）	$I_{C(SC)}$	$V_{GE}=15V, V_{CE}=600V, t_{sc} < 10\mu s, T_C=25^\circ C$		160		A
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	$V_{CE}=25V, V_{GE}=0V, f=1.0MHz$	-	1600	2400	pF
输出电容 Output capacitance	C_{oss}		-	120	190	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	84	130	pF





电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics

延迟时间 Turn-On delay time	$t_d(\text{on})$	$V_{CE}=600V, I_C=20A, R_G=56\Omega$ $T_C=25^\circ\text{C}$ Inductive Load	-	85		ns
上升时间 Turn-On rise time	t_r		-	180		ns
延迟时间 Turn-Off delay time	$t_d(\text{off})$		-	360		ns
下降时间 Turn-Off Fall time	t_f		-	100		ns
Turn-on energy	E_{on}			1.8		mJ
Turn-off energy	E_{off}			1.1		mJ
Total switching energy	E_{total}			2.9		mJ
栅极电荷总量 Total Gate Charge	Q_g	$V_{CE}=600V,$ $I_C=20A$ $V_{GE}=15V$ (note 3, 4)	-	120		nC

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	$V_{GS}=0V, I_S=20A$	-	-	2.9	V
反向恢复时间 Diode Reverse recovery time	t_{rr}	$V_{GE}=0V, V_R=800V, I_S=20A$	-	150	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}	$di_F/dt=750A/\mu s$ (note 4)	-	1.2	-	μC

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	最大 Max			单 位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$		0.35		$^\circ\text{C}/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$		40		$^\circ\text{C}/W$

注释:

- 1: 脉冲宽度由最高结温限制
- 2: 两次短路之间的间隔大于 1 秒时, 允许短路测试的次数最大为 1000 次
- 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

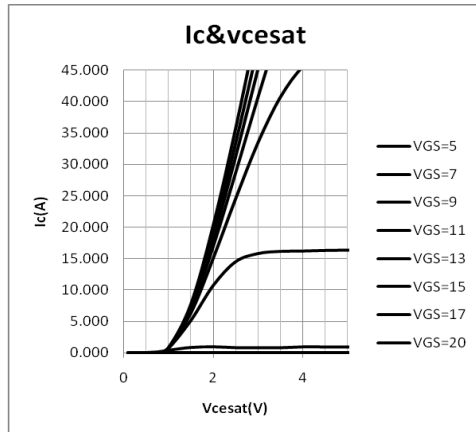
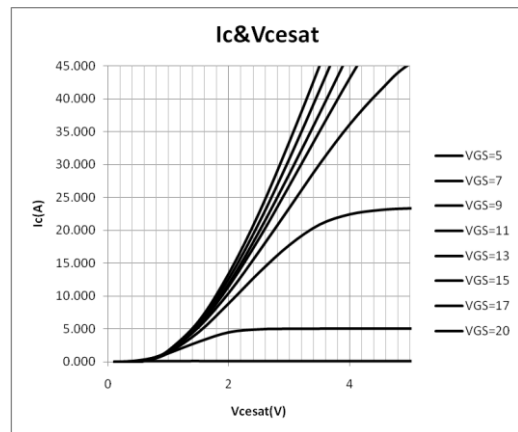
Notes:

- 1: Pulse width limited by maximum junction temperature
- 2: Allowed number of short circuits: <1000; time between short circuits: >1s.
- 3: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
- 4: Essentially independent of operating temperature

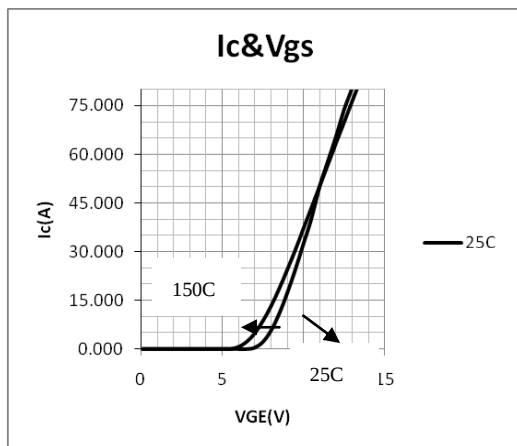




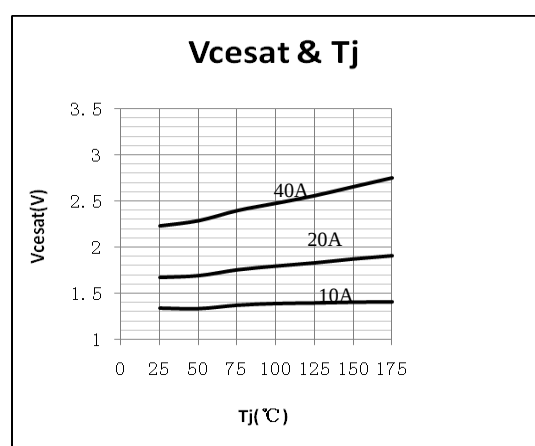
特征曲线 ELECTRICAL CHARACTERISTICS (curves)

Typical Output Characteristics($T_j=25^\circ\text{C}$)Typical Output Characteristics($T_j=150^\circ\text{C}$)

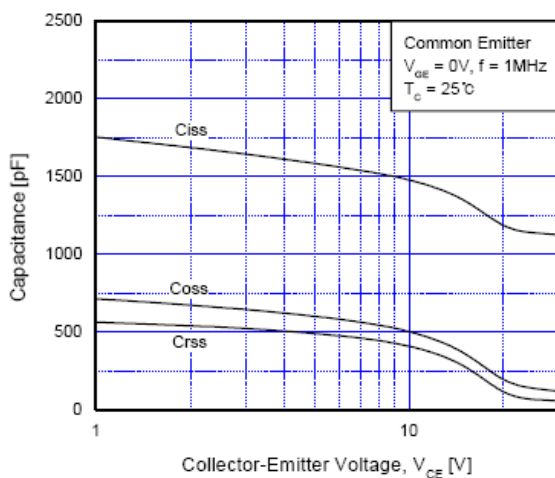
Typical Saturation Voltage Characteristics



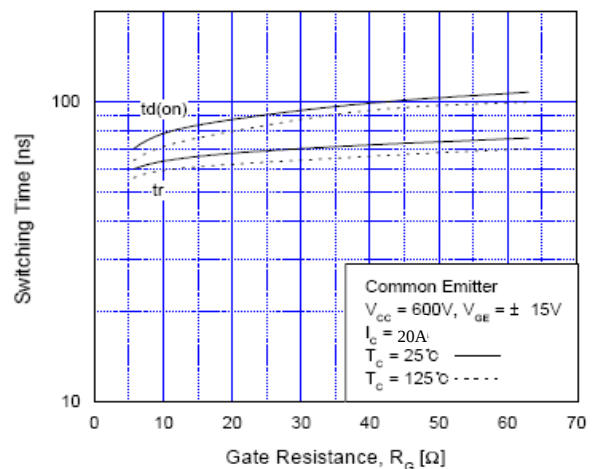
Saturation Voltage vs. Case Temperature at Variant Current Level



Capacitance Characteristics

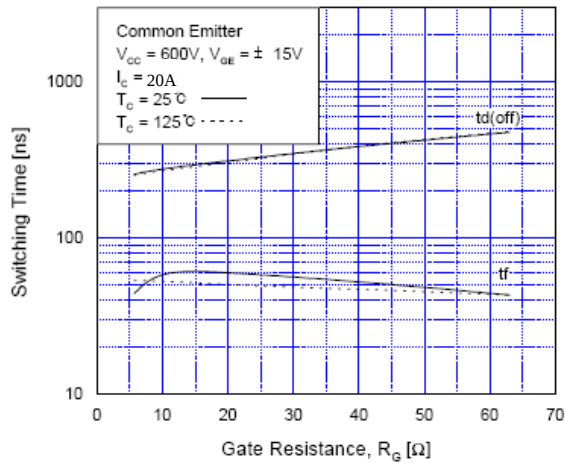


Turn-On Characteristics vs. Gate Resistance

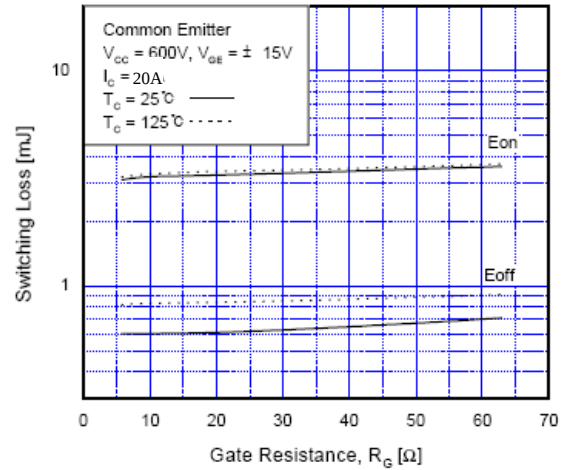




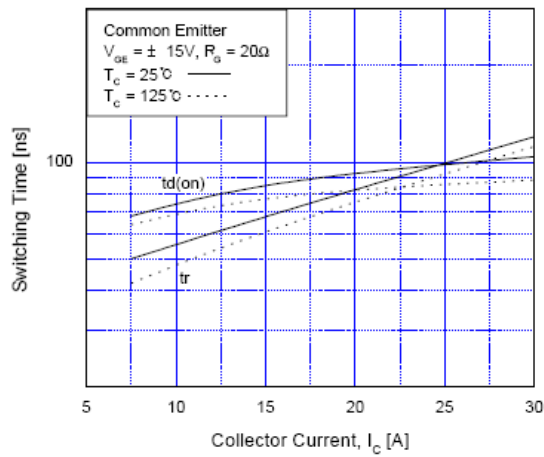
Turn-Off Characteristics vs. Gate Resistance



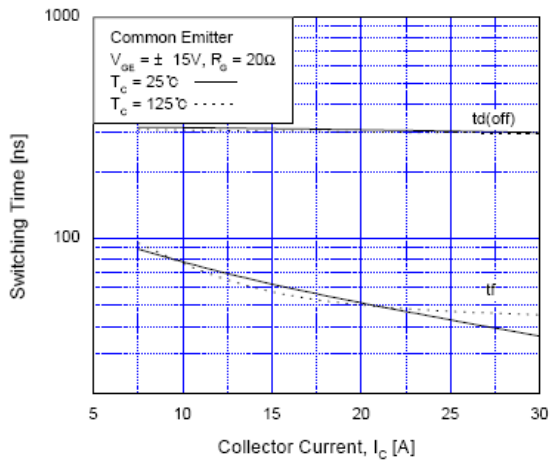
Switching Loss vs. Gate Resistance



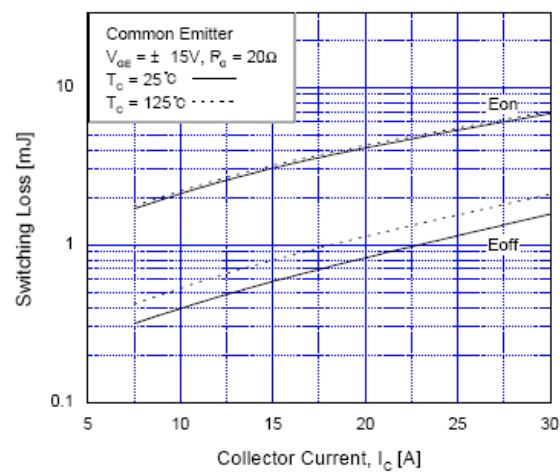
Turn-On Characteristics vs. Collector Current



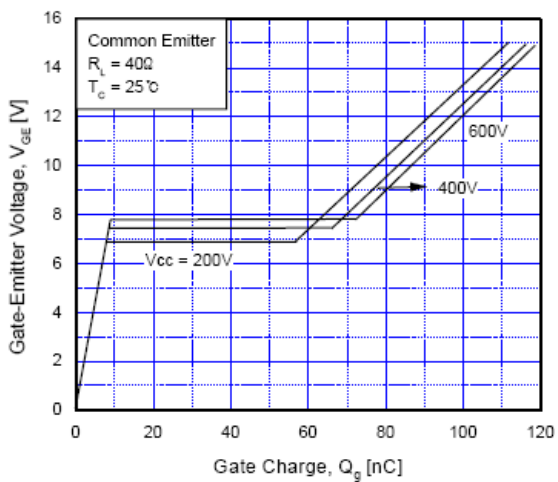
Turn-Off Characteristics vs. Collector Current



Switching Loss vs. Collector Current

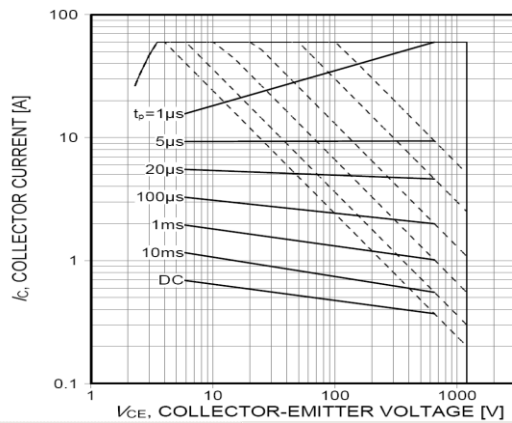


Gate Charge Characteristics

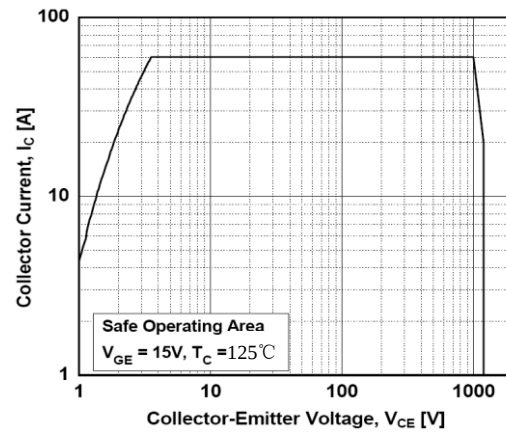




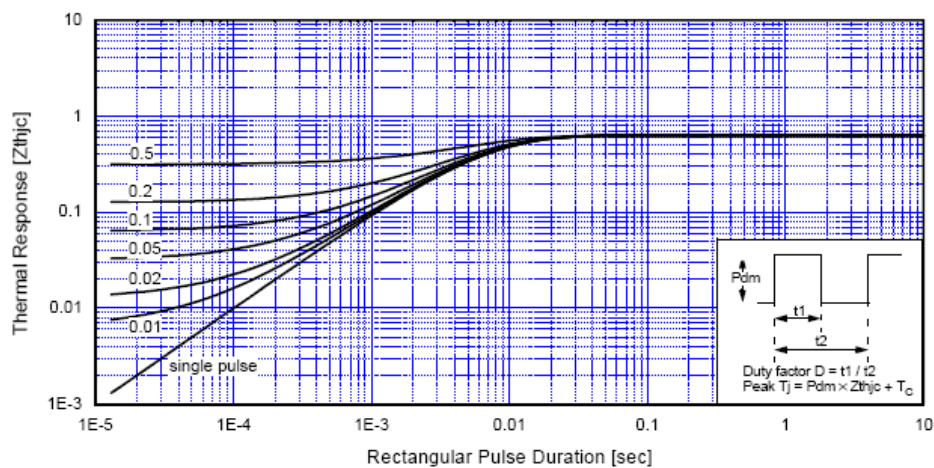
SOA Characteristics



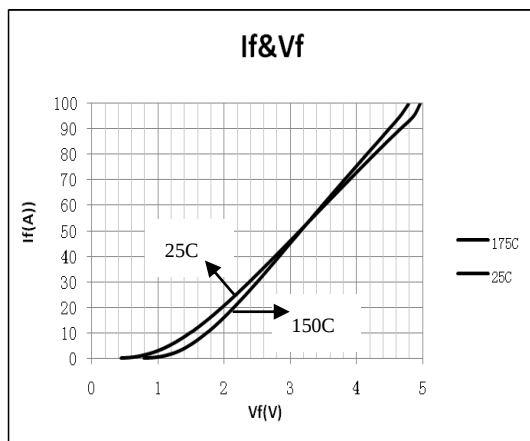
Turn-Off SOA



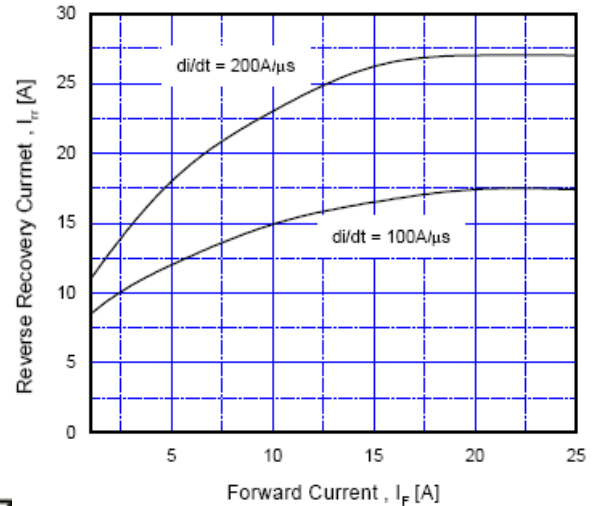
Transient Thermal Impedance



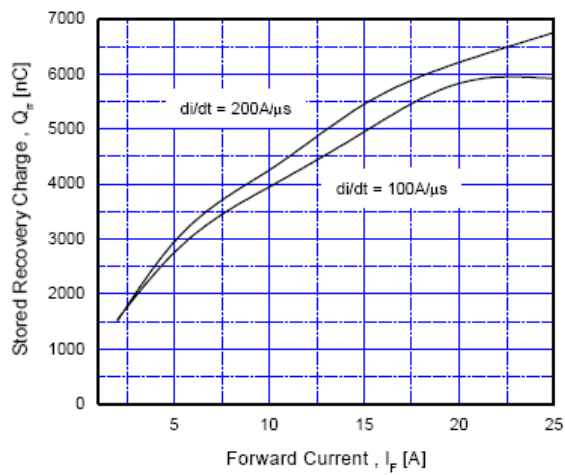
Forward Characteristics



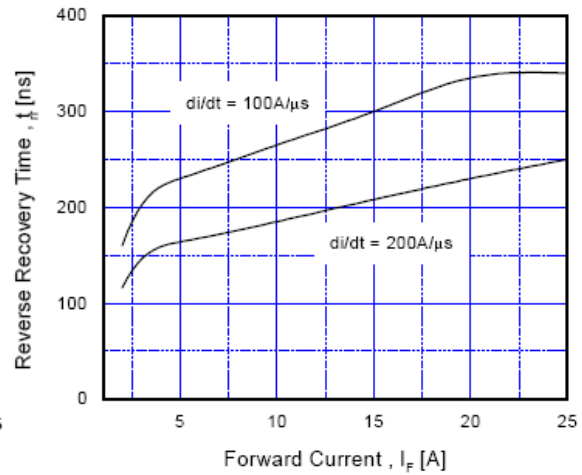
Reverse Recovery Current



Stored Charge



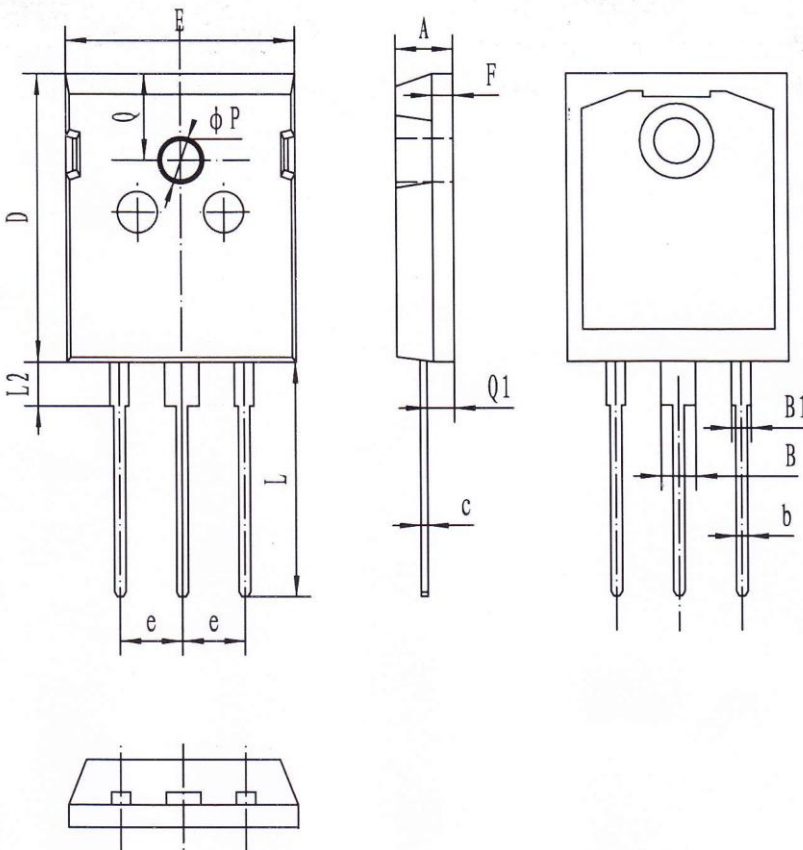
Reverse Recovery Time



外形尺寸 PACKAGE MECHANICAL DATA

TO-247

单位 Unit: mm



符号 symbol	MIN	MAX
A	4.90	5.10
B	2.85	3.11
B1	1.95	2.05
b	1.15	1.25
c	0.60TYP	
D	20.77	21.07
E	15.77	16.03
e	5.32	5.58
F	1.92	2.08
L	20.05	20.31
L2	4.22	4.32
Q	6.00	6.20
Q1	2.33	2.43
P	3.65	3.75



注意事项

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2. 购买时请认清公司商标，如有疑问请与公司本部联系。
3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
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.
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