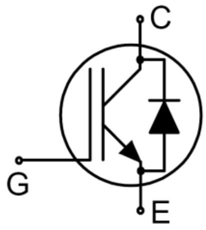
JT020N135WDD/ABDD

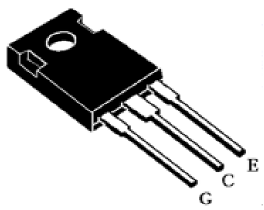
主要参数 MAIN CHARACTERISTICS

I_C	20 A
V_{CES}	1350 V
$V_{CE(sat)}$_typ （V_{GE}=15V）	1.70V

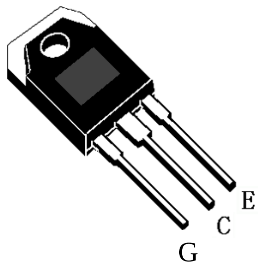
封装 Package



TO-247



TO-3PB



用途 APPLICATIONS

- 逆变器 / General purpose inverters
- 电磁炉 / Induction heating(IH)
- UPS 电源 / UPS

产品特性 FEATURES

- 低栅极电荷 / Low gate charge
- FS 技术 / FS Technology
- 通态压降, $V_{CE(sat)}$, typ = 1.70V TC = 25°C / Saturation voltage: $V_{CE(sat)}$, typ = 1.70V TC = 25°C
- RoHS 产品 / RoHS product

订货信息 ORDER MESSAGE

订 货 型 号 Order codes 有卤-条管 Halogen-Tube	印 记 Marking	封 装 Package
JT020N135WDD-GE-B	JT020N135WDD	TO-247
JT020N135ABDD-GD-B	JT020N135ABDD	TO-3PB

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value JT020N135WDD/ABDD	单位 Unit
最高集电极一发射极直流电压 Collector-Emmiter Voltage	V_{CES}	1350	V
连续集电极极电流 Collector Current-continuous	I_C T=25℃	40	A
	T=100℃	20	A
最大脉冲集电极极电流（注 1） Collector Current – pulse （note 1）	I_{CM}	100	A
栅极发射极电压 Gate-Emmiter Voltage	V_{GES}	±25	V
安全工作区 Turn-off safe area	-	60	A
耗散功率 Power Dissipation	P_D T_C=25℃	312.5	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

*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						
集电极一发射极击穿电压 Collector-Emmiter Voltage	BV_{CES}	I_C=500μA, V_{GE}=0V	1350	-	-	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℃	-	0.6	-	V/℃
零栅压下集电极漏电流 Zero Gate Voltage Collector Current	I_{CES}	V_{CE}=1350V,V_{GE}=0V, T_C=25℃	-	-	0.2	mA
		T_C=100℃			2	mA
		T_C=150℃	-	-	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-Emmiter Threshold Voltage	$V_{GE(th)}$	V_{CE} = V_{GE}， I_C=600μA	4.5	-	6.5	V
饱和压降 Collector-Emmiter saturation Voltage	V_{CESAT}	V_{GE}=15V I_C=20 Tc=25℃ Tc=125℃ Tc=150℃	- - -	1.7 2.0 2.1	2.3 - -	V
短路电流（注 2） Short Collector current（Note 2）	$I_{C（SC）}$	V_{GE}=15V V_{CE}=600V tsc < 10μs Tc=25℃		160		A
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1.0MHz	-	3850	-	pF
输出电容 Output capacitance	C_{oes}		-	89	-	pF
反向传输电容 Reverse transfer capacitance	C_{res}		-	46	-	pF

电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics						
开启延迟时间 Turn-On delay time	t_d(on)	V_{CE}=600V,I_C=20A,R_G=10Ω T_C=25℃ Inductive Load	-	29.7	-	ns
上升时间 Turn-On rise time	t_r		-	65.8	-	ns
关断延迟时间 Turn-Off delay time	t_d(off)		-	215	-	ns
下降时间 Turn-Off Fall time	t_f		-	35	-	ns
开启损耗 Turn-on energy	E_{on}		-	2.5	-	mJ
关断损耗 Turn-off energy	E_{off}		-	1.0	-	mJ
总的开关损耗 Total switching energy	E_{total}		-	3.5	-	mJ
栅极电荷总量 Total Gate Charge	Q_g	V_{CE} =600V， I_C=20A V_{GE}=15V （note 3，4）	-	119	-	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 Diode Forward Voltage	V_F	V_{GE}=0V, I_F=20A	-	1.6	2.5	V
反向恢复时间 Diode Reverse recovery time	t_{rr}	V_{GE}=0V, VR=800V I_F=20A dI_F/dt=200A/μs (note 4)	-	180	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		-	1.6	-	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	$R_{th(j-c)}$	0.4	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	40	℃/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≤300μs,占空比≤2％

4：基本与工作温度无关

Notes:

1：Pulse width limited by maximum junction temperature

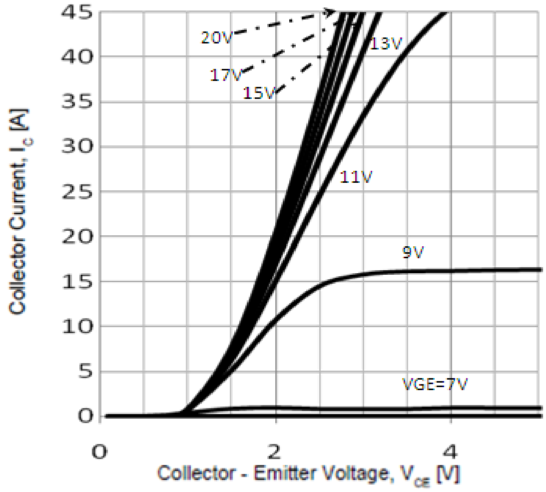
2：Allowed number of short circuits: <1000; time between short circuits: >1s.

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

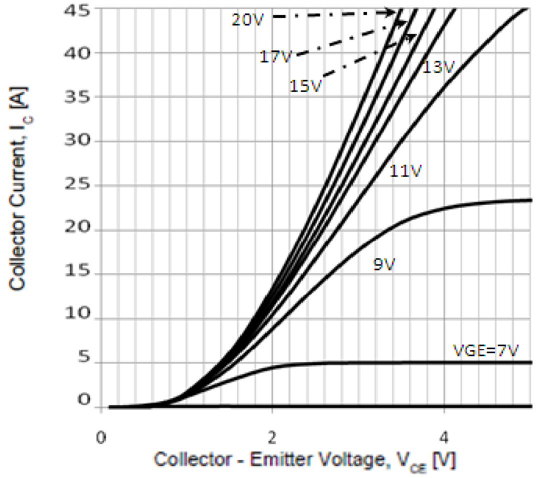
4：Essentially independent of operating temperature

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

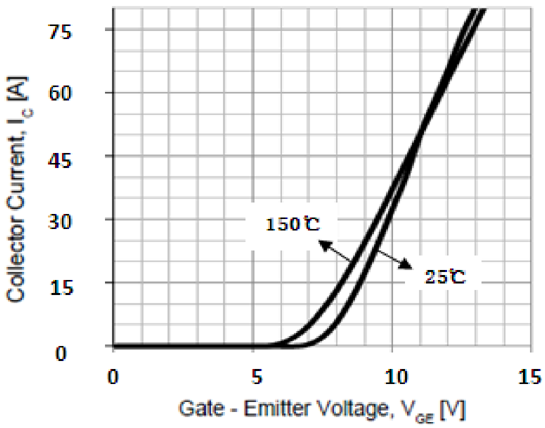
Typical Output Characteristics(T_j=25℃)



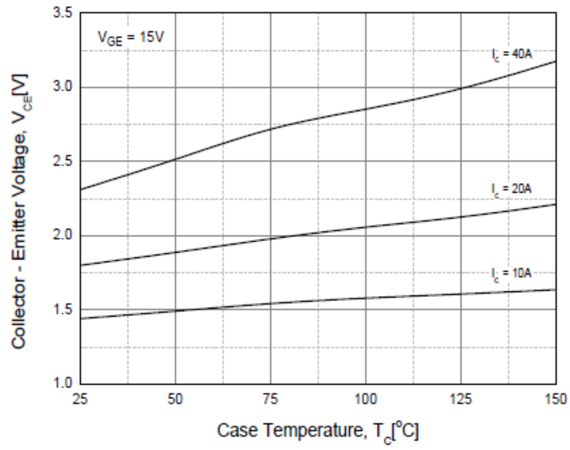
Typical Output Characteristics(T_j=150℃)



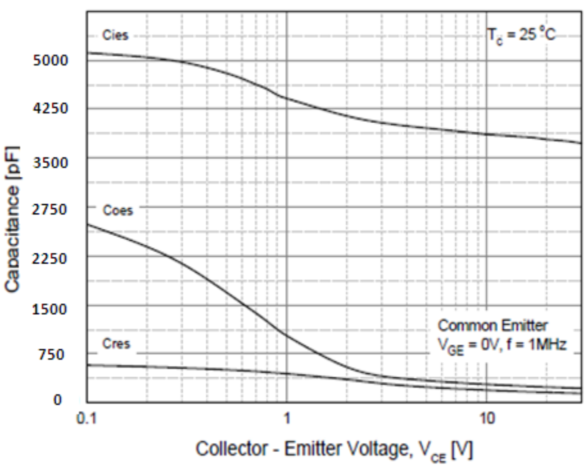
Typical Transfer Characteristics



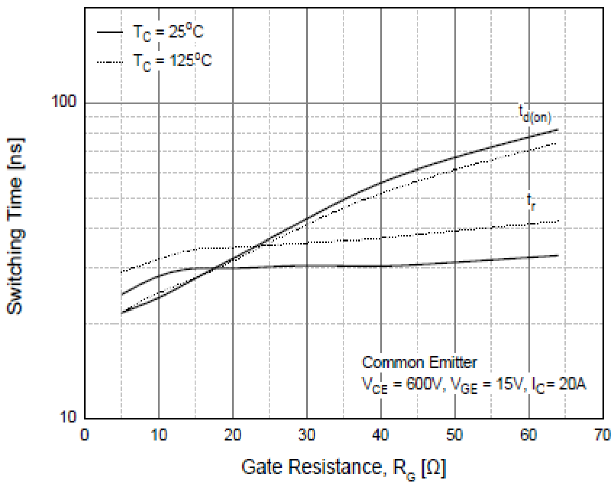
Saturation Voltage vs. Case Temperature at Variant Current Level



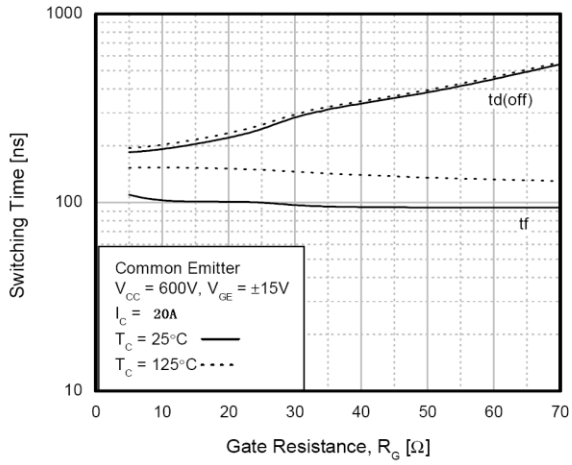
Capacitance Characteristics



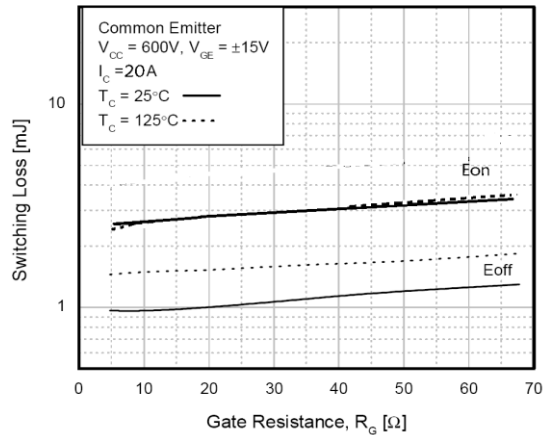
Turn-On Characteristics vs. Gate Resistance



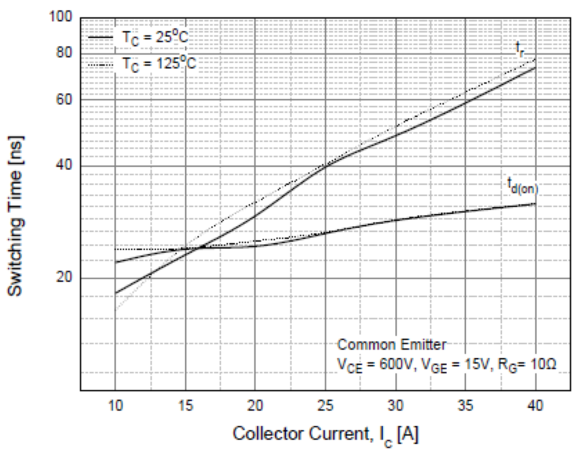
Turn-Off Characteristics vs. Gate Resistance



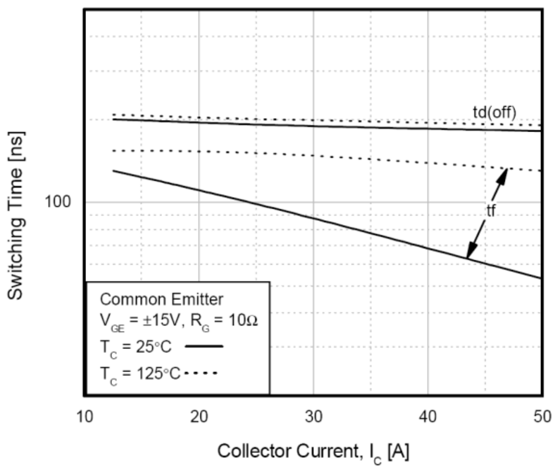
Switching Loss vs. Gate Resistance



Turn-On Characteristics vs. Collector Current

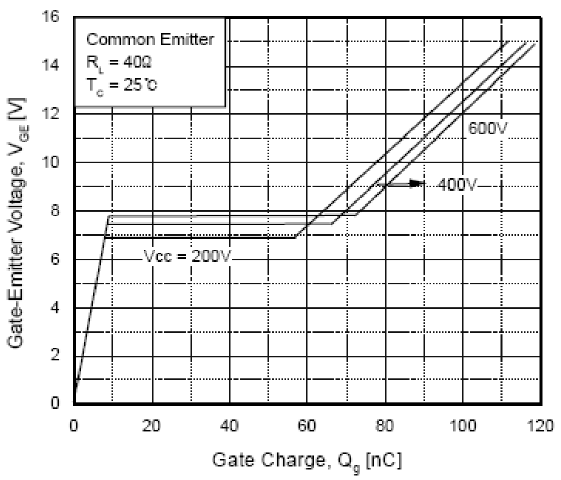


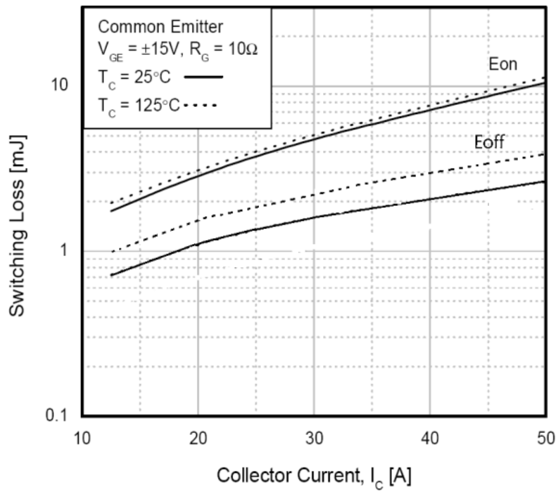
Turn-Off Characteristics vs. Collector Current



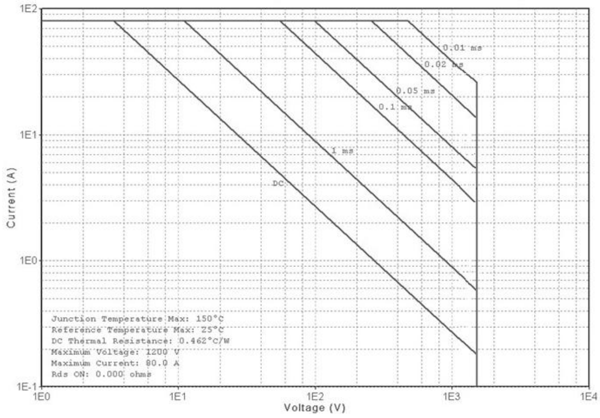
Switching Loss vs. Collector Current

Gate Charge Characteristics

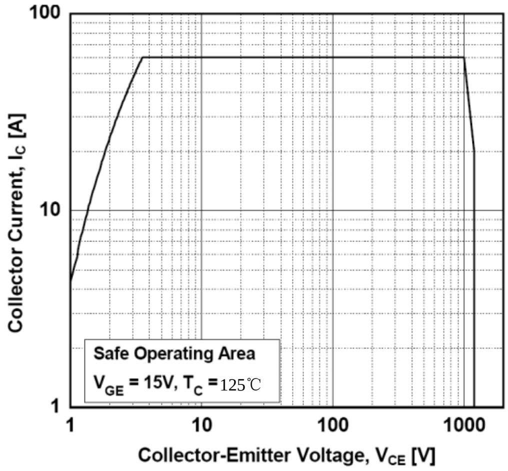




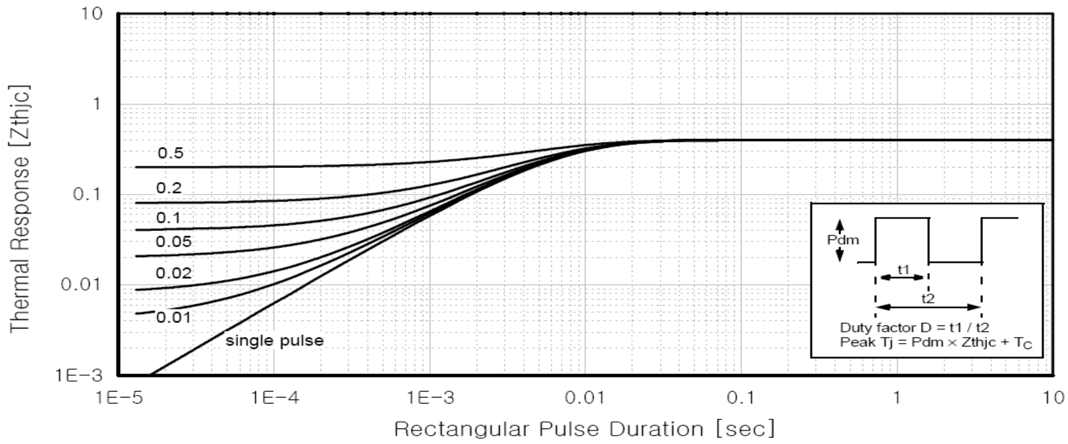
SOA Characteristics



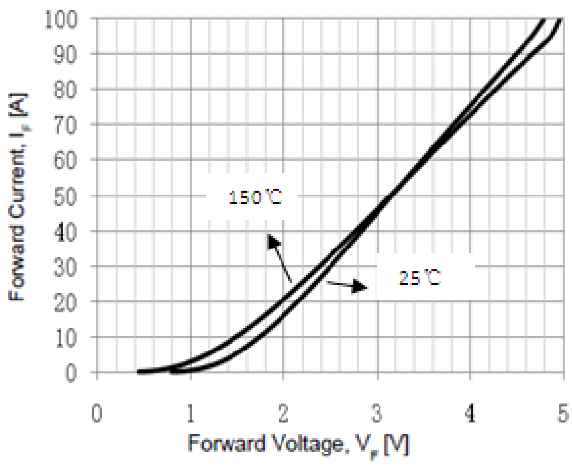
Turn-Off SOA



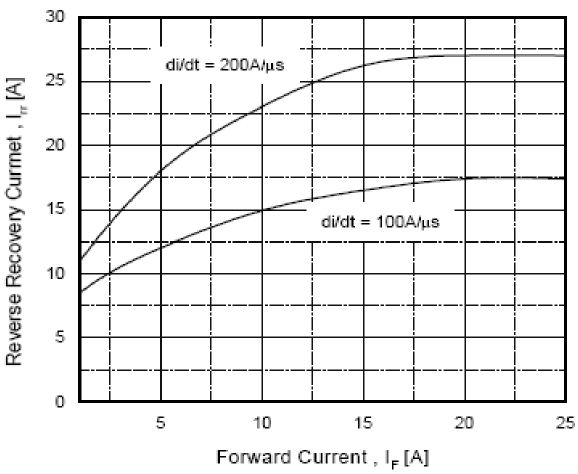
Transient Thermal Impedance



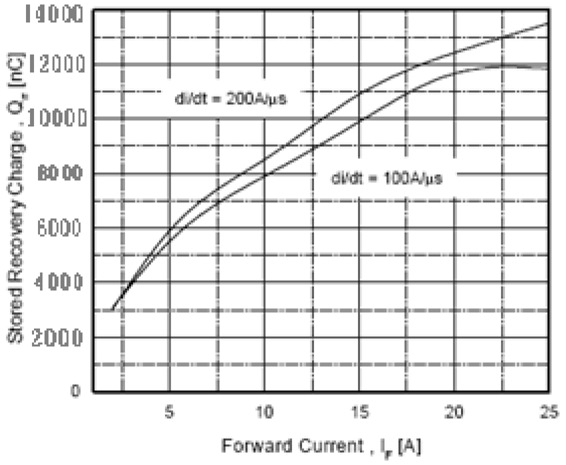
Forward Characteristics



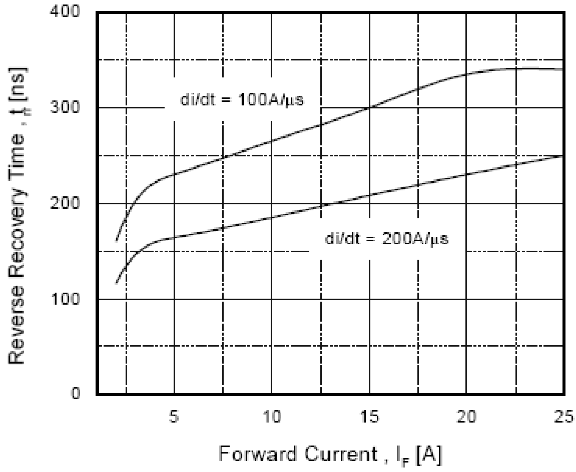
Reverse Recovery Current



Stored Charge



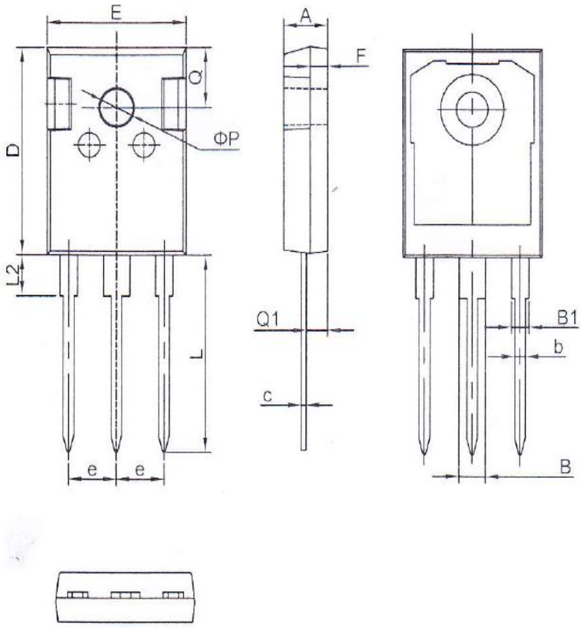
Reverse Recovery Time



外形尺寸 **PACKAGE MECHANICAL DATA**

TO-247

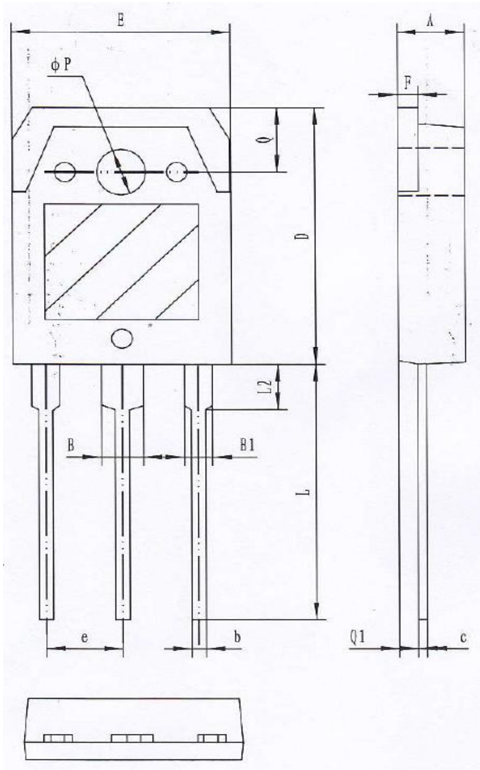
单位 Unit：mm



符号 symbol	MIN	MAX
A	4.90	5.10
B	2.95	3.35
B1	1.95	2.35
b	1.15	1.35
c	0.50	0.70
D	20.90	21.10
E	15.70	15.90
e	5.34	5.54
F	1.90	2.10
L	19.40	20.40
L2	4.03	4.23
Q	6.00	6.40
Q1	2.30	2.50
P	3.50	3.70

TO-3PB

单位 Unit：mm



符号 symbol	MIN	MAX
A	4.60	5.00
B	2.90	3.20
B1	1.90	2.20
b	0.90	1.10
c	0.50	0.70
D	19.40	20.40
E	15.40	15.80
e	5.45(TYP)	
F	1.40	1.60
L	19.50	20.50
L2	3.30	3.70
Q	4.90	5.10
Q1	1.30	1.50
P	3.10	3.50

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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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