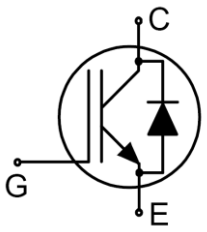
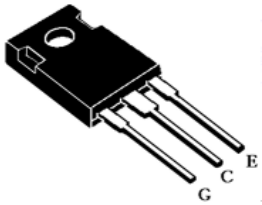
JT020N120WCD/ABCD/20N120C

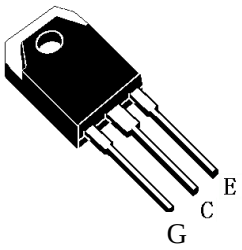
主要参数 MAIN CHARACTERISTICS

I_C	20 A
V_{CES}	1200 V
Vcesat（@Vge=15V）	1.8V(type)

封装 **Package**







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, VCE(sat), typ = 1.8V @ IC = 20A and TC = 25°C
- RoHS 产品

FEATURES

- Low gate charge
- FS Technology
- saturation voltage: VCE(sat), typ = 1.8V @ IC = 20A and TC = 25°C
- RoHS product

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)

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-Emmiter Voltage	V_{ces}	1200	V
连续集电极极电流 Drain 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}	60	A
最高栅极发射极电压 Gate-Emmiter Voltage	V_{GES}	±20	V
Turn-off safe area	-	60	A
耗散功率 Power Dissipation	P_D T_C=25℃	150	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-Emmiter Voltage	BV_{CES}	I_C=500μA, 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℃	-	0.6	-	V/℃
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℃	-	-	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 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}	VGE=15V IC=20A Tc=25℃ Tc=125℃ Tc=150℃	 - - -	 1.8 2.0 2.1	 2.45 - -	V
短路电流（注 2） Short Collector current（Note 2）	$I_{C(SC)}$	VGE=15V VCE=600V tsc < 10μs Tc=25℃		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	$t_d(on)$	V_{CE}=600V,I_C=20A,R_G=56Ω T_C=25℃ Inductive Load	-	85		ns
上升时间 Turn-On rise time	t_r		-	180		ns
延迟时间 Turn-Off delay time	$t_d(off)$		-	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, VR=800V I_S=20A dI_F/dt=750A/μs (note 4)	-	150	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		-	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		℃/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

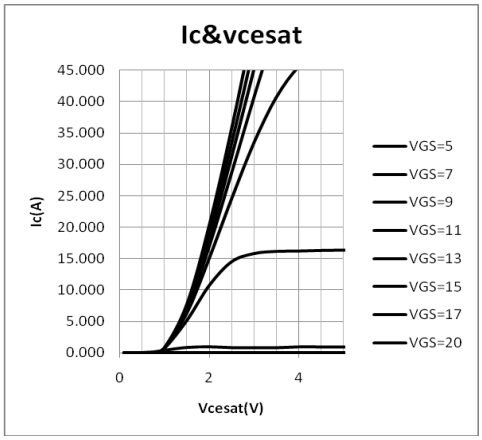
2：Allowed number of short circuits: <1000; time between short circuits: >1s.

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

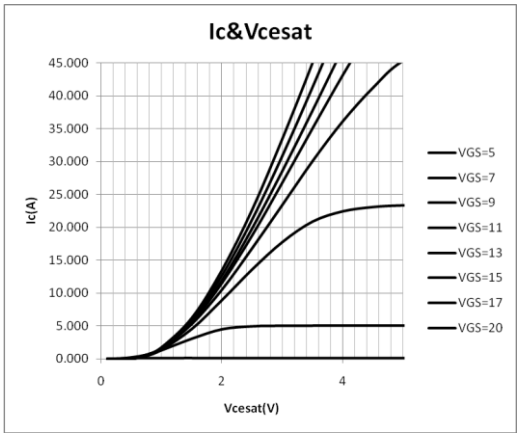
4：Essentially independent of operating temperature

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

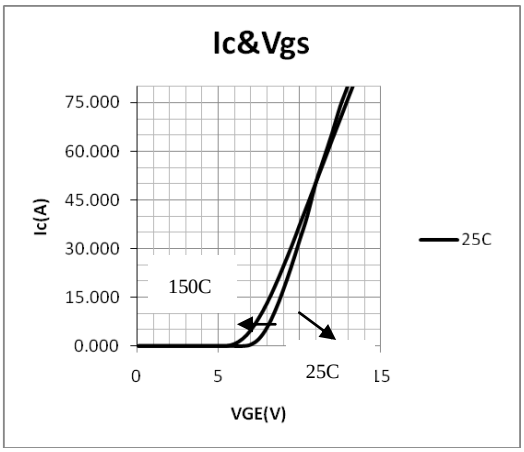
Typical Output Characteristics(Tj=25℃)



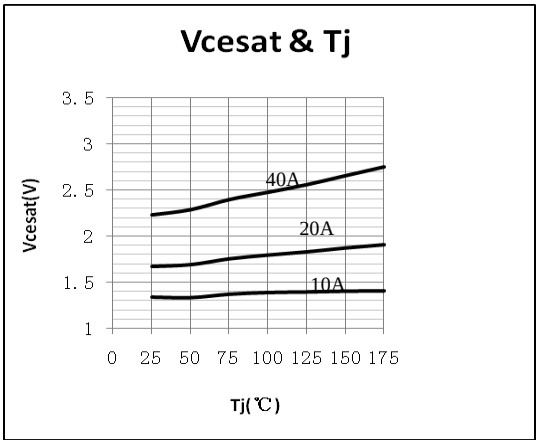
Typical Output Characteristics(Tj=150℃)



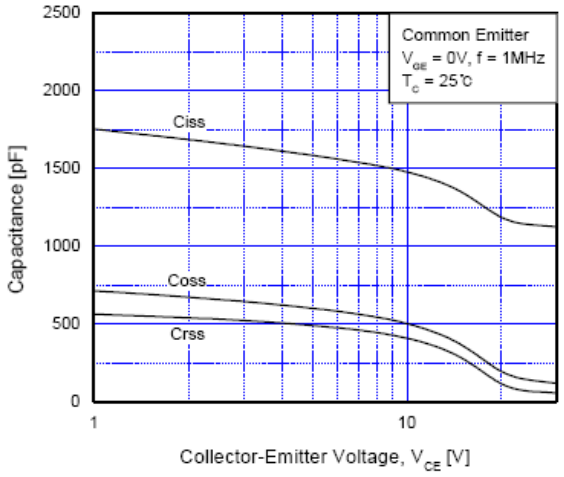
Typical Saturation Voltage Characteristics



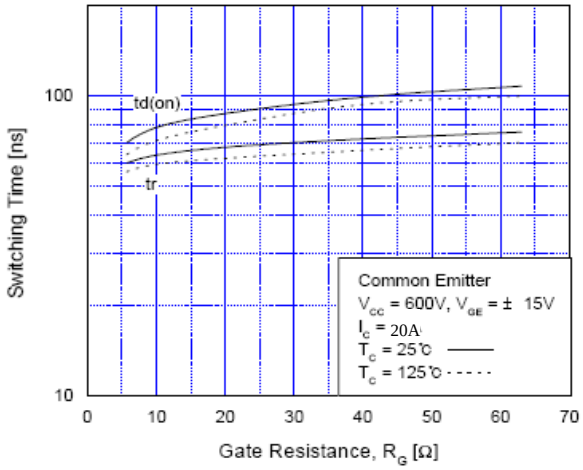
Saturation Voltage vs. Case Temperature at Variant Current Level



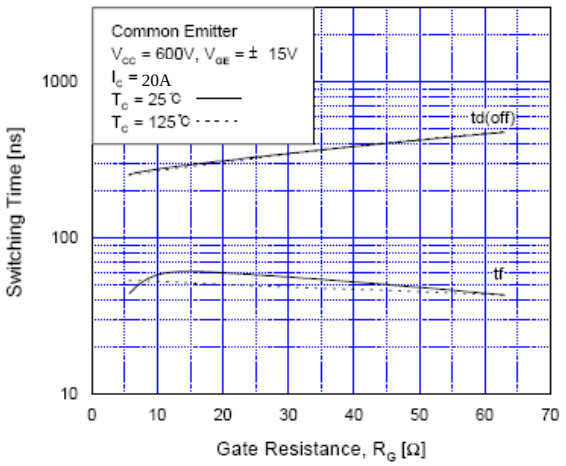
Capacitance Characteristics



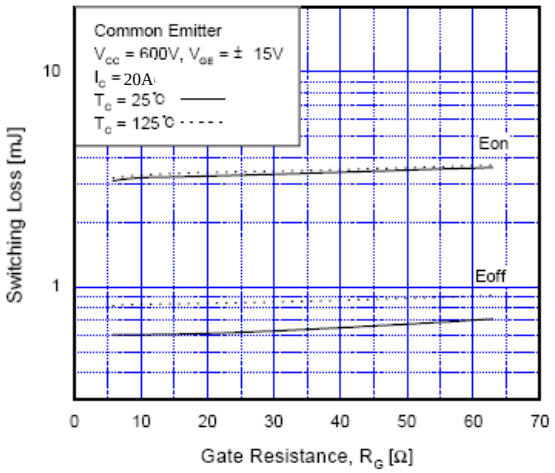
Turn-On Characteristics vs. Gate Resistance



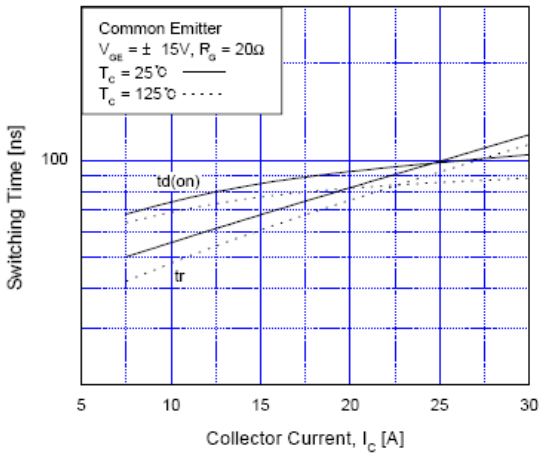
Turn-Off Characteristics vs. Gate Resistance



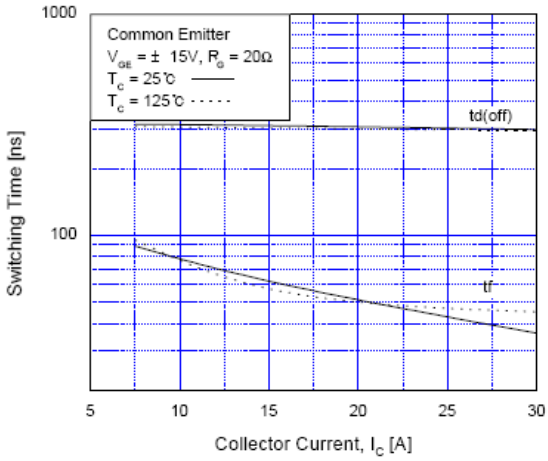
Switching Loss vs. Gate Resistance



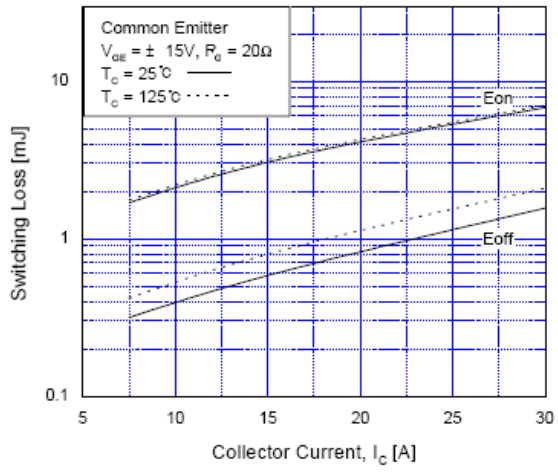
Turn-On Characteristics vs. Collector Current



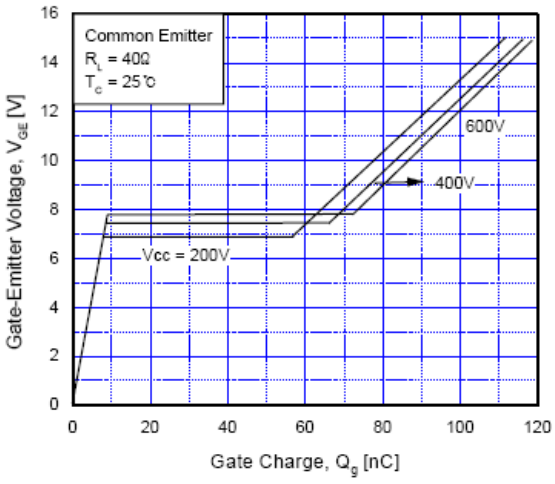
Turn-Off Characteristics vs. Collector Current



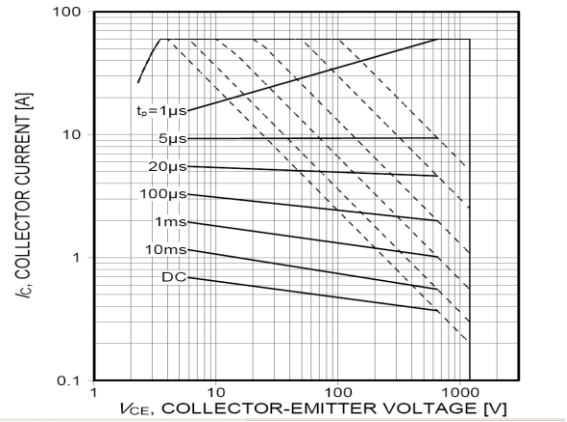
Switching Loss vs. Collector Current



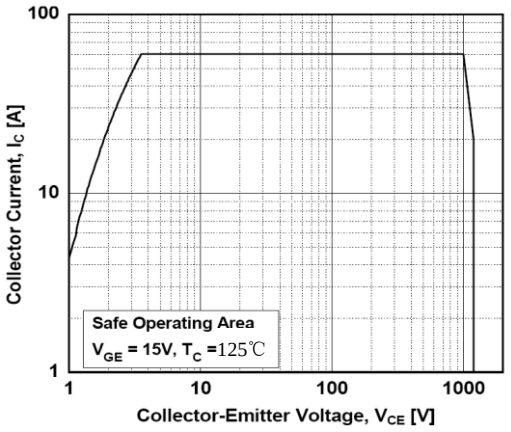
Gate Charge Characteristics



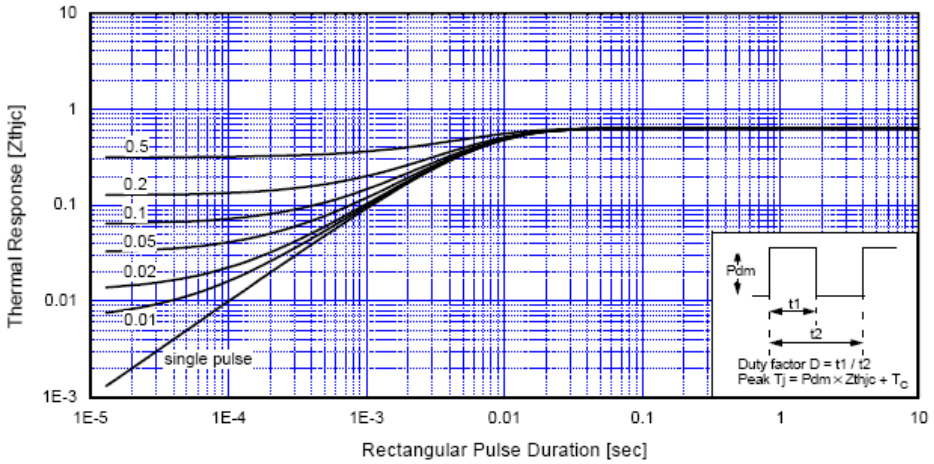
SOA Characteristics



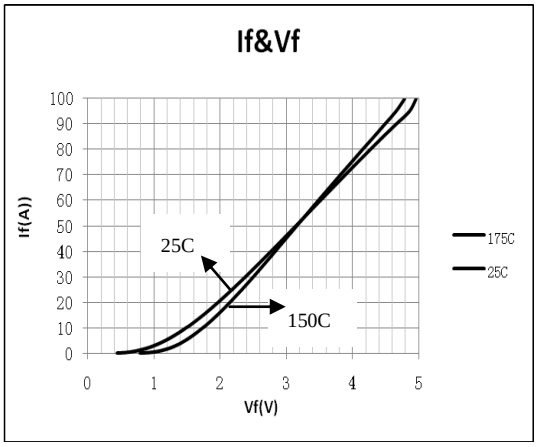
Turn-Off SOA



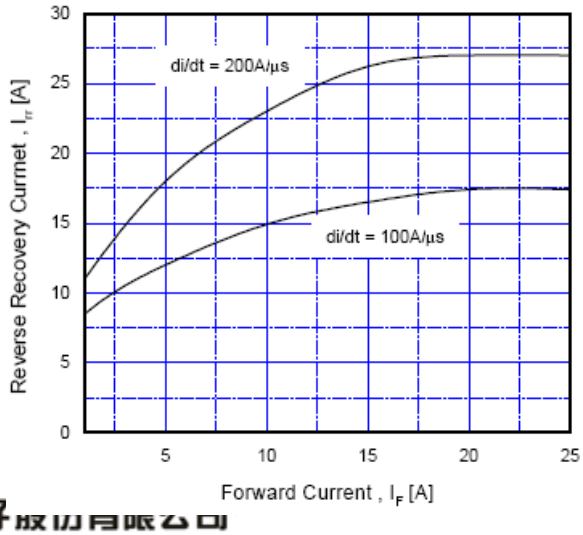
Transient Thermal Impedance



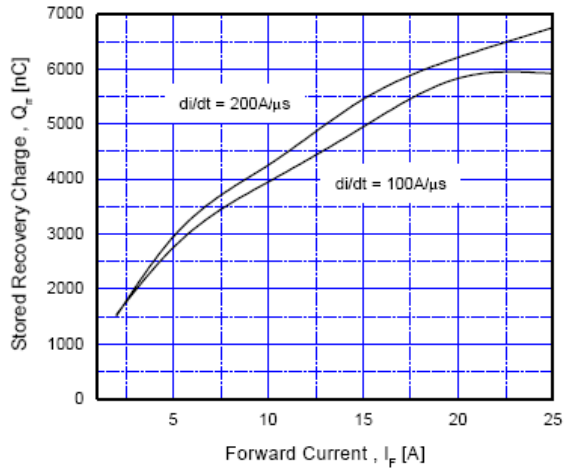
Forward Characteristics



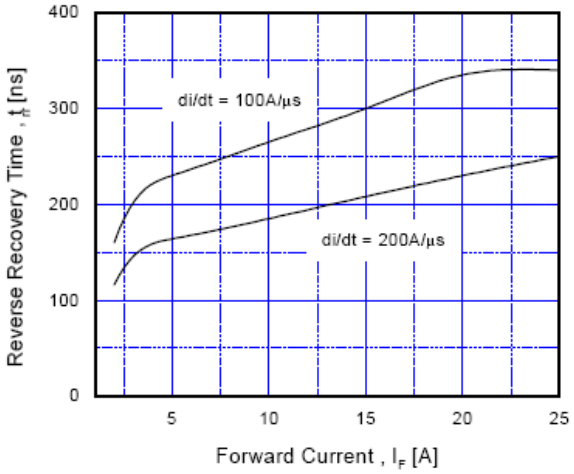
Reverse Recovery Current



Stored Charge



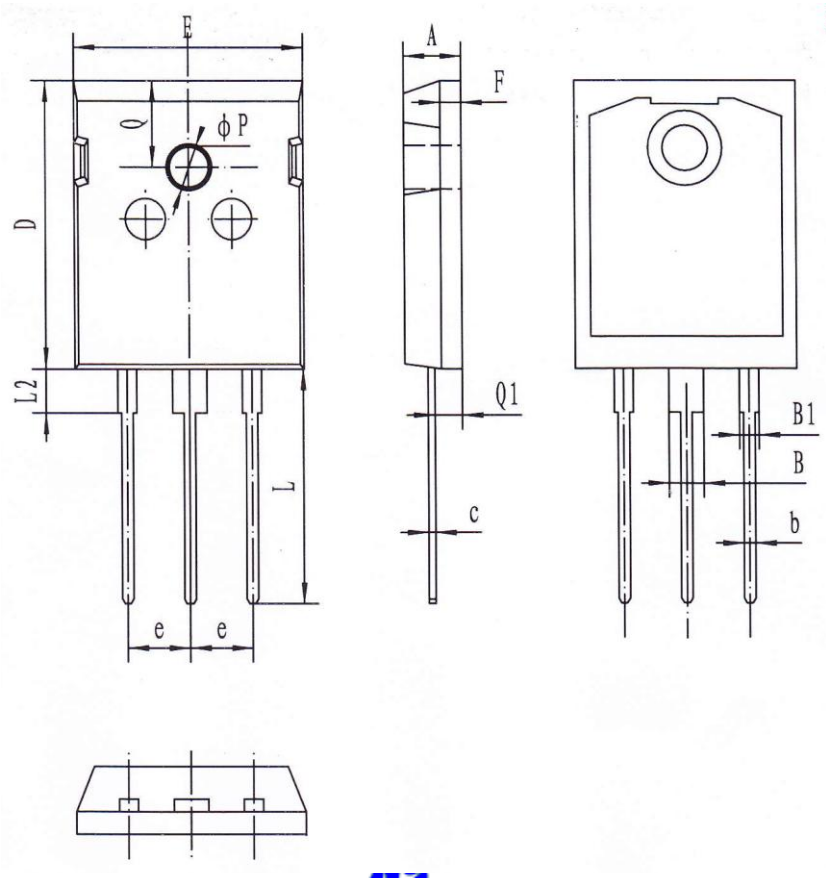
Reverse Recovery Time



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

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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

NOTE

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2. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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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

市场营销部

地址：吉林省吉林市深圳街 99 号

邮编：132013
电话： 86-432-64675588
64675688
64678411-3098/3099
传真: 86-432-64671533

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

MARKET DEPARTMENT

ADD: No.99 Shenzhen Street, Jilin City, Jilin Province, China.
Post Code: 132013
Tel: 86-432-64675588
64675688
64678411-3098/3099
Fax: 86-432-64671533