



JT015N120ANAD/WAD

主要参数 MAIN CHARACTERISTICS

I _C	15 A
V _{CES}	1200 V
V _{cesat} (@V _{ge} =15V)	2.4V

用途

- 逆变器
- 电磁炉
- UPS 电源

APPLICATIONS

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

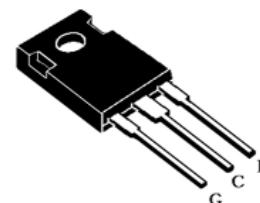
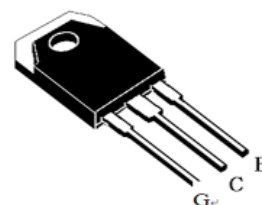
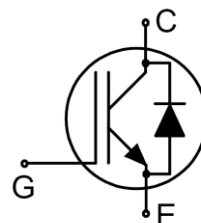
产品特性

- 低栅极电荷
- NPT 技术,正温度系数
- 通态压降, V_{CE(sat)}, typ = 2.4V @ I_C = 15A and T_C = 25°C
- RoHS 产品

FEATURES

- Low gate charge
- NPT Technology, Positive temperature coefficient
- saturation voltage: V_{CE(sat)}, typ = 2.4V @ I_C = 15A 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
JT015N120ANAD	JT015N120ANAD	TO-3PN	否 NO	条管 Tube	6 g(typ)
JT015N120WAD	JT015N120WAD	TO-247	否 NO	条管 Tube	6 g(typ)



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
		JT015N120AN AD	JT015N120W AD		
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 $T=25^{\circ}\text{C}$	30	30		A
	$T=100^{\circ}\text{C}$	15	15		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
短路时间（注2） Short circuit withstand time (Note2)	T_{SC}	10			μS
Turn-off safe area	-	45			A
耗散功率 Power Dissipation	P_D $T_c=25^{\circ}\text{C}$	150	150		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			$^{\circ}\text{C}$

*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}	$V_{GE}=15V, I_C=15A, T_C=25^\circ C$	-	2.4	3.5	V
		$T_C=125^\circ C$	-	2.8	-	
		$T_C=150^\circ C$	-	3.0	-	
正向跨导 Forward Transconductance	g_{fs}	$V_{CE} = 20V, I_C=15A$	-	10	-	S
短路电流（注2） Short Collector current (Note 2)	$I_{C(SC)}$	$V_{GE}=15V, V_{CE}=600V, t_{sc} < 10\mu s, T_C=25^\circ C$		90		A
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	$V_{CE}=25V, V_{GE}=0V, f=1.0MHz$	-	1700	2600	pF
输出电容 Output capacitance	C_{oss}		-	128	200	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	88	140	pF





电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics							
延迟时间 Turn-On delay time	$t_{d(on)}$	$V_{CE}=600V, I_D=15A, R_G=56\Omega$ $T_C=25^\circ C$	-	70			ns
上升时间 Turn-On rise time	t_r		-	150			ns
延迟时间 Turn-Off delay time	$t_{d(off)}$		-	300			ns
下降时间 Turn-Off Fall time	t_f		-	80			ns
Turn-on energy	E_{on}			2.3			mJ
Turn-off energy	E_{off}			1.3			mJ
Total switching energy	E_{total}			3.6			mJ
栅极电荷总量 Total Gate Charge	Q_g	$V_{CE}=960V$, $I_C=15A$ $V_{GE}=15V$ (note 3, 4)	-	85			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	$V_{GS}=0V, I_S=15A$	-	-	2.9		V
反向恢复时间 Diode Reverse recovery time	t_{rr}	$V_{GE}=0V, V_R=800V I_S=10A$	-	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	$R_{th(j-c)}$		0.6		$^\circ C/W$
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$		40		$^\circ C/W$

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:

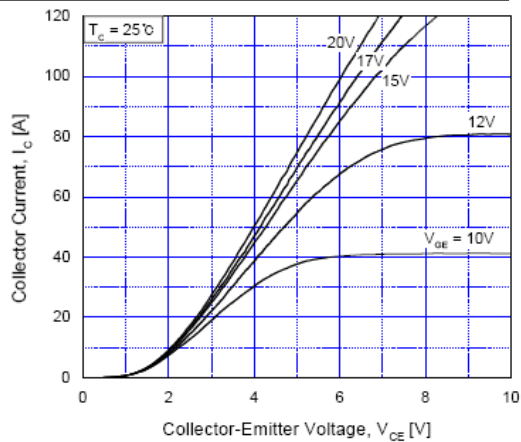
- 1: Pulse width limited by maximum junction temperature
- 2: Allowed number of short circuits: <1000; time between short circuits: >1s.
- 3: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
- 4: Essentially independent of operating temperature



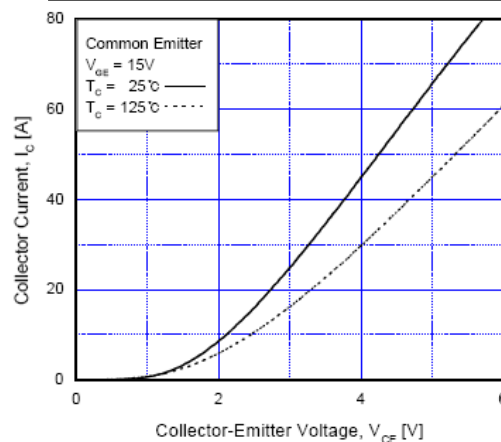


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

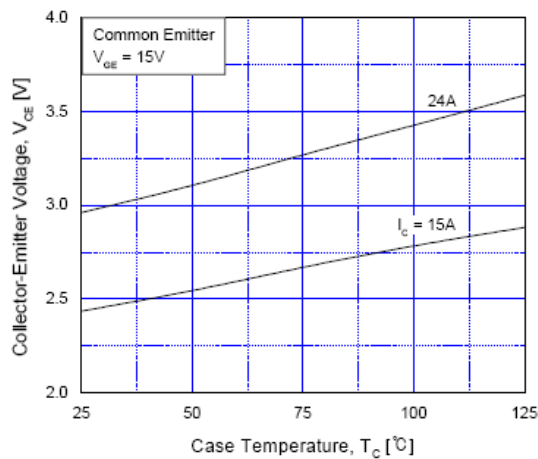
Typical Output Characteristics



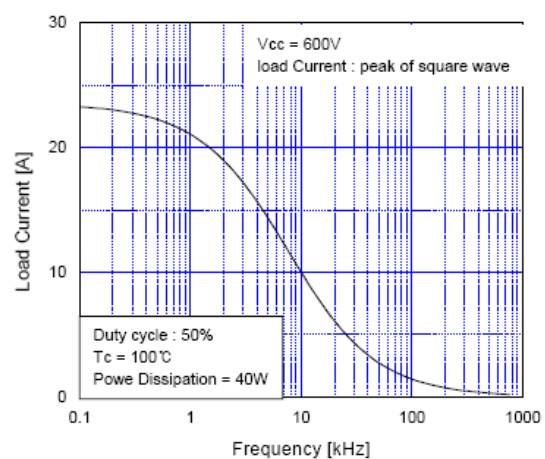
Typical Saturation Voltage Characteristics



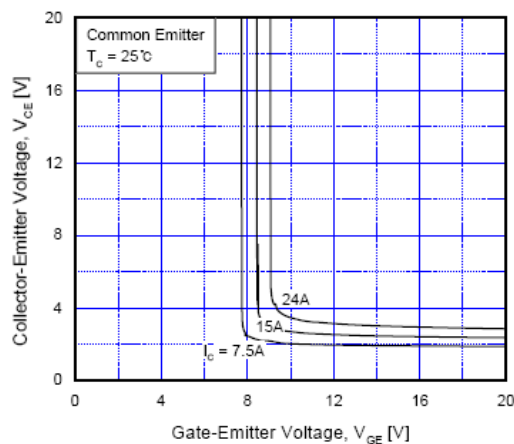
Saturation Voltage vs. Case Temperature at Variant Current Level



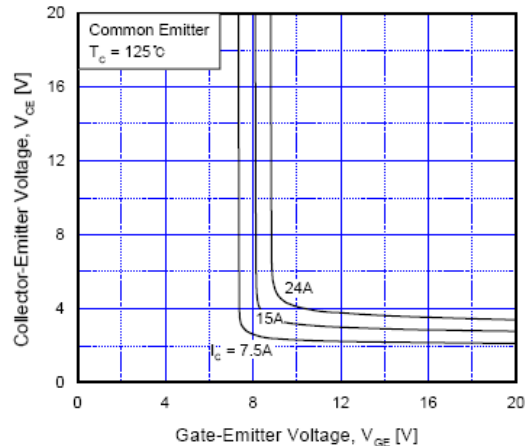
Load Current vs. Frequency

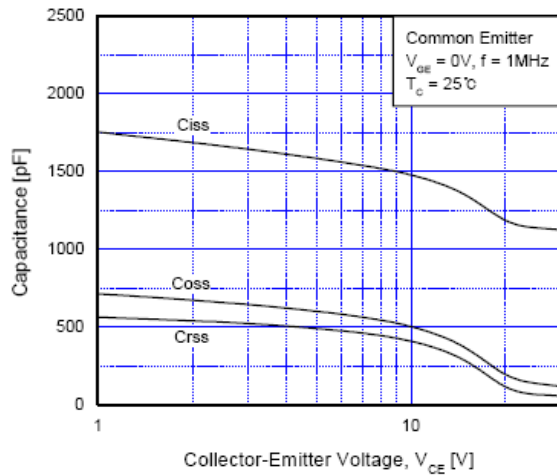
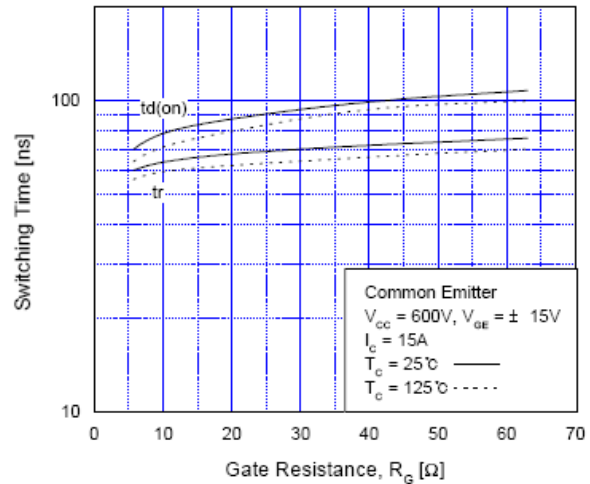
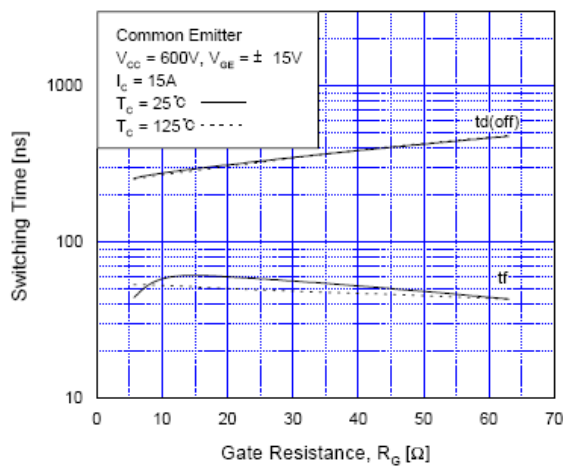
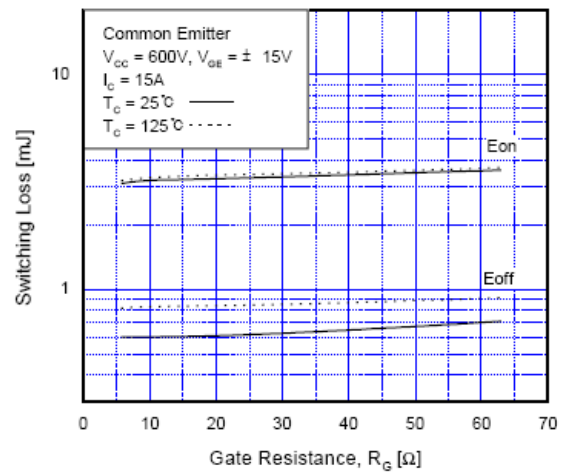
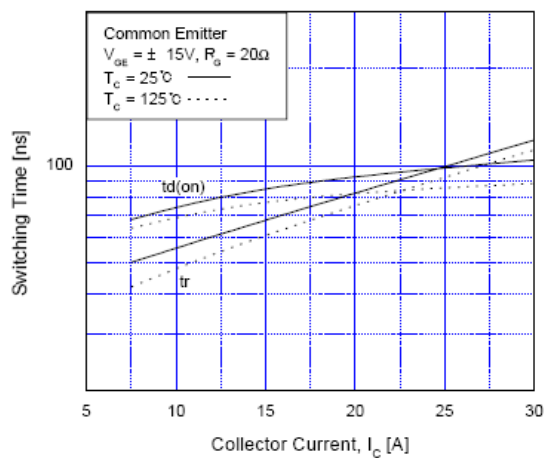
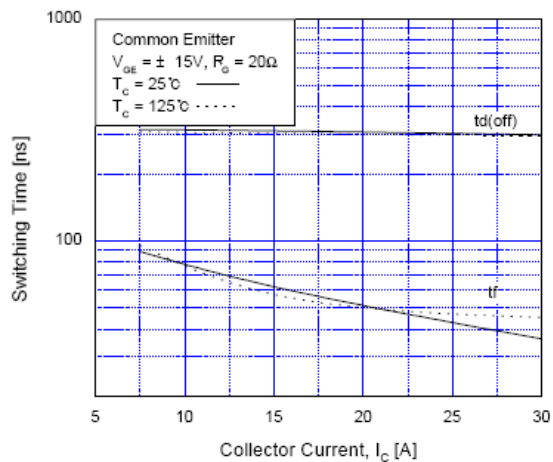


Saturation Voltage vs. V_GE



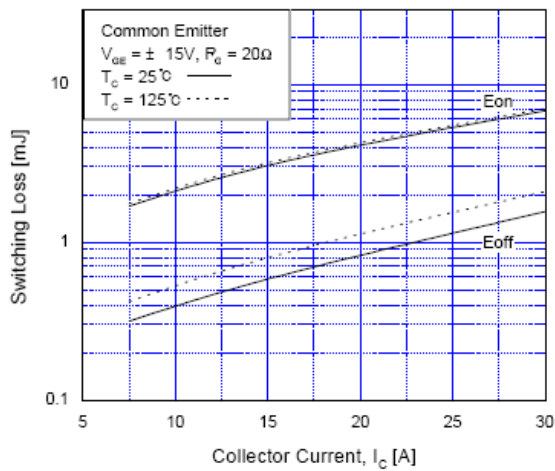
Saturation Voltage vs. V_GE



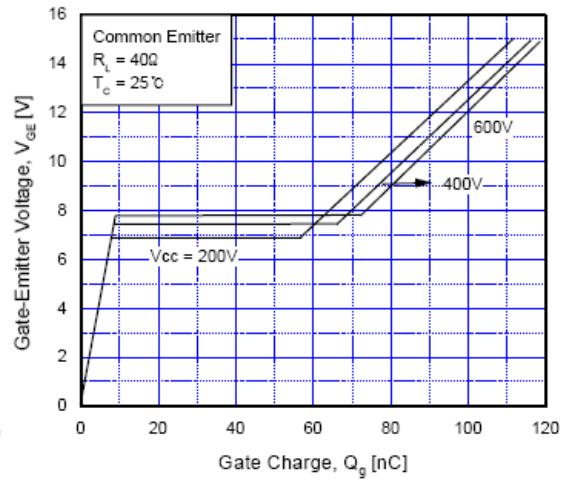
**Capacitance Characteristics****Turn-On Characteristics vs. Gate Resistance****Turn-Off Characteristics vs. Gate Resistance****Switching Loss vs. Gate Resistance****Turn-On Characteristics vs. Collector Current****Turn-Off Characteristics vs. Collector Current**



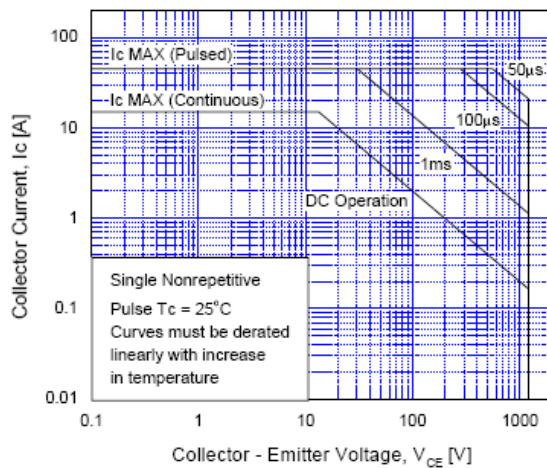
Switching Loss vs. Collector Current



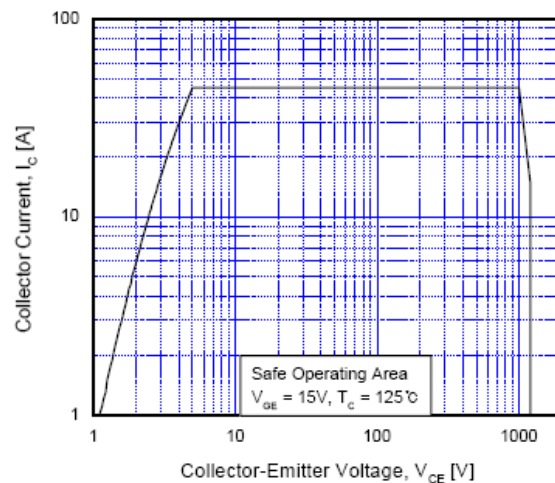
Gate Charge Characteristics



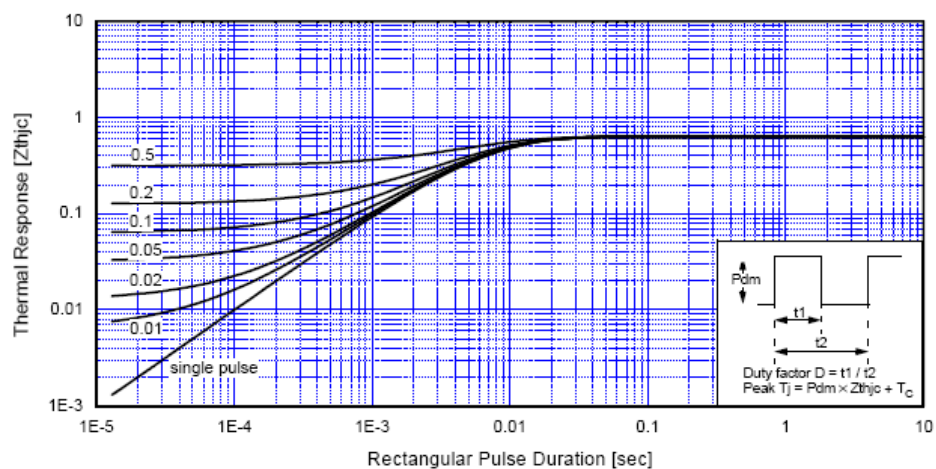
SOA Characteristics



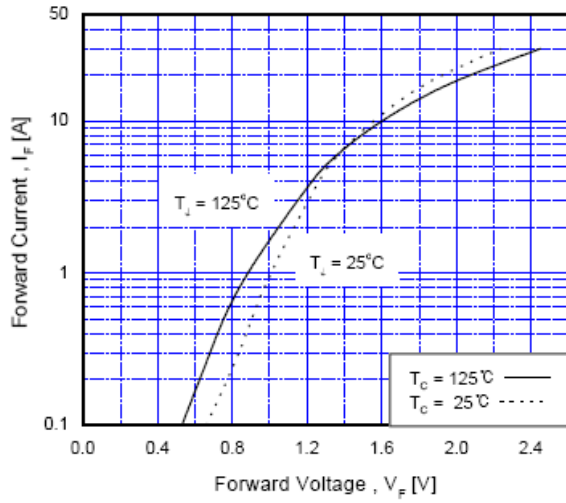
Turn-Off SOA



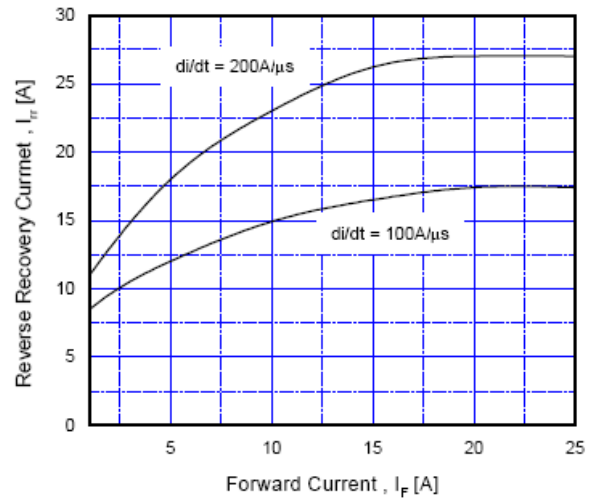
Transient Thermal Impedance



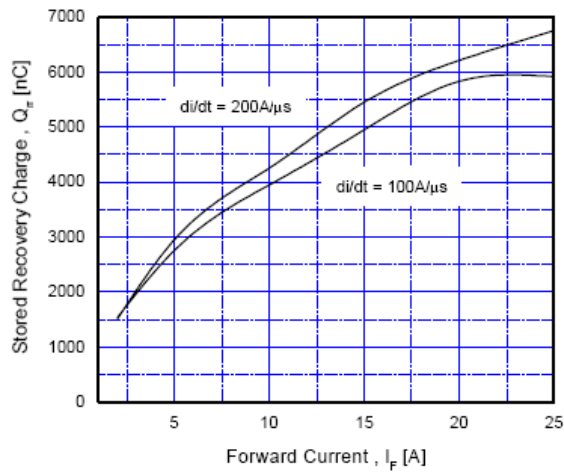
Forward Characteristics



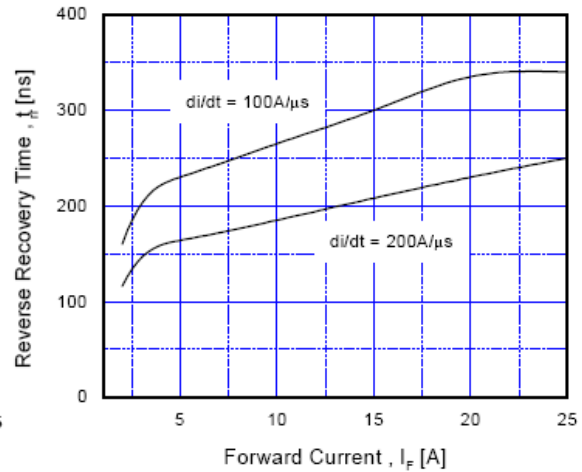
Reverse Recovery Current



Stored Charge



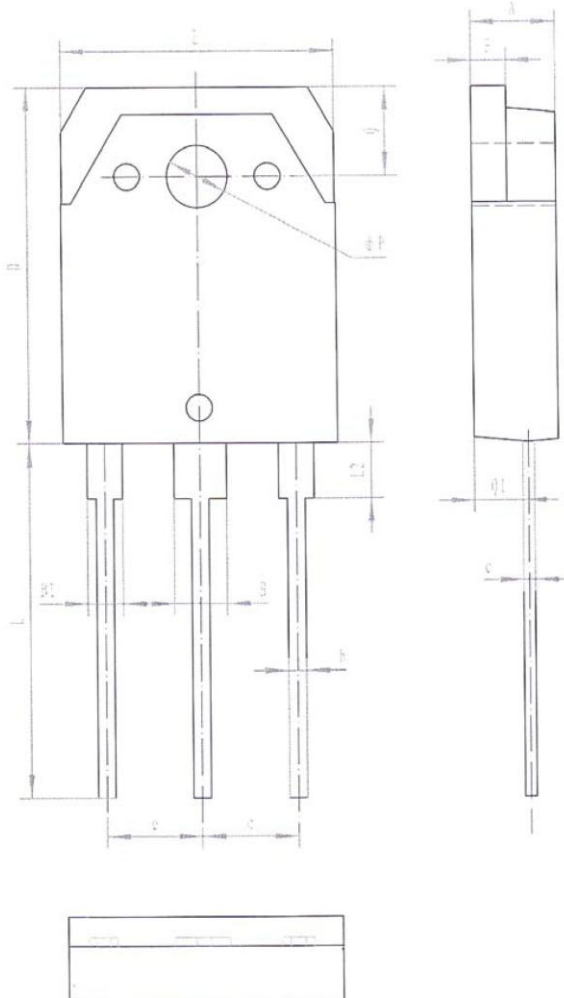
Reverse Recovery Time





TO-3PN

单位 Unit: mm



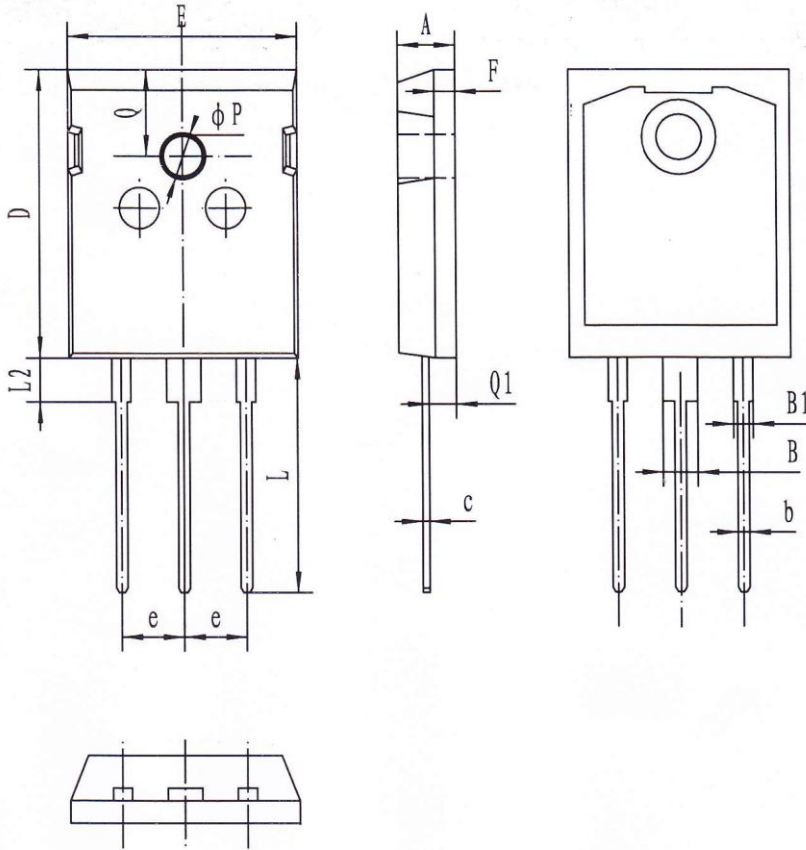
符号 symbol	MIN	MAX
A	4.55	4.95
B	2.90	3.20
B1	1.90	2.20
b	0.90	1.10
c	0.40	0.80
D	19.70	20.10
E	15.30	15.70
e	5.45(TYP)	
F	1.90	2.10
L	19.50	20.50
L2	3.05	3.25
Q	4.90	5.10
Q1	2.60	3.00
P	3.30	3.70





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

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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.
4. Jilin Sino-microelectronics co., Ltd reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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