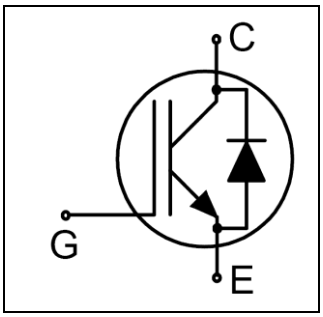
JT015N065WED

主要参数 MAIN CHARACTERISTICS

I_C	15 A
V_{CES}	650V
V_{CESAT}-TY (V_{GE}=15V)	1.6V

封装 **Package**



TO-247

用途

- 逆变器
- UPS 电源
- 电机控制

APPLICATIONS

- General purpose inverters
- UPS
- Motor Control

产品特性

- 低栅极电荷
- Trench FS 技术
- RoHS 产品

FEATURES

- Low gate charge
- Trench FS Technology
- RoHS product

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		
JT015N065WED-GE-B	JT015N065WED-GE-BR	N/A	N/A	JT015N065WED	TO-247

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
最高集电极－发射极直流电压 Collector-Emmiter Voltage	V_{CES}	650	V
*连续集电极电流 CollectorCurrent-continuous	I_C	30 (T_C=25°C)	A
		15(T_C=100°C)	A
最大脉冲集电极极电流 Collector Current – pulse	I_{CM}	60	A
二极管正向测试电流 Diode RMS forward current	I_F	30(T_C=25°C)	A
	I_F	15(T_C=100°C)	A
二极管正向不重复峰值电流（浪涌电流） Surge non repetitive forward current tp= 10 ms sinusoidal	I_{FSM}	60	A
最高栅极发射极电压 Gate-Emmiter Voltage	V_{GES}	±25	V
Turn-off safe area 安全工作区电流	-	60	A
耗散功率 Power Dissipation	P_D T_C=25°C	185	W
存储温度 Storage Temperature Range	T_{STG}	-55～+150	°C
结温 Junction Temperature Range	T_J	-55～+175	°C
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	300	°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-Emmiter Voltage	BV_{CES}	I_C=250μA, 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℃	-	0.5	-	V/℃
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℃	-	-	10	uA
		V_{CE}=650V, V_{GE}=0V, T_C=175℃	-	-	2	mA
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=250μA	4.5	-	6.5	V
饱和压降 Collector-Emmiter saturation Voltage	V_{CESAT}	V_{GE}=15V , I_C=15A Tc=25℃	-	1.6	2.0	V
		V_{GE}=15V , I_C=15A Tc=175℃	-	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	-	980	-	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	Qg	V_{CC}=400V,I_c=15A,R_G=10Ω V_{GE}=15 V T_C=25℃	-	32.9	-	nC
栅极-反射极 Gate to emitter charge	Qge		-	7.5	-	
栅极-集电极 Gate to collector charge	Qgc		-	14.2	-	
短路时间- Short circuit withstand time	tsc	V_{GE}=15.0V, V_{CC} ≤360V	-	10	-	us

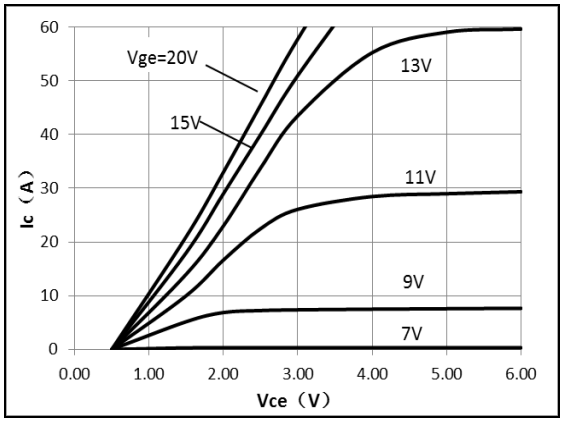
电特性 ELECTRICAL CHARACTERISTICS

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	td(on)	V_{CC}=400V ,Ic=15A	-	12	-	ns
上升时间 Turn-On rise time	tr	R_G=12Ω , V_{GE}=15 V	-	16	-	ns
关断延迟时间 Turn-Off delay time	td(off)	T_C=25℃	-	58	-	ns
下降时间 Turn-Off Fall time	tf		-	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	td(on)	V_{CC}=400V ,Ic=15A	-	12.9	-	ns
上升时间 Turn-On rise time	tr	R_G=12Ω , V_{GE}=15 V	-	16.7	-	ns
关断延迟时间 Turn-Off delay time	td(off)	T_C=175℃	-	82	-	ns
下降时间 Turn-Off Fall time	tf		-	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, T_C=25℃	-	1.4	2.2	V
		V_{GE}=0V, I_S=15A, T_C=175℃	-	1.15	-	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/μs ,T_C=25℃	-	150	-	ns
反向恢复电荷 Diode Reverse recovery charge	Qrr		-	1.24	-	uC
反向恢复电流 Diode Reverse recovery Current	I_{RRM}		-	15.5	-	A

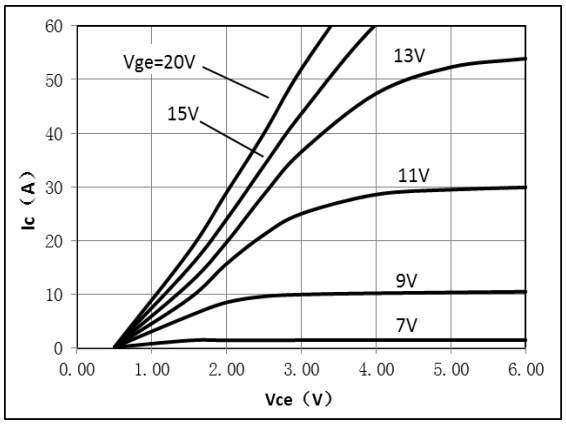
项 目 Parameter	符 号 Symbol	MAX	单 位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.81	℃/W
结到管壳的热阻（FRD） Thermal Resistance, Junction to Case	$R_{th(j-c)}$	2.1	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	40	℃/W

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

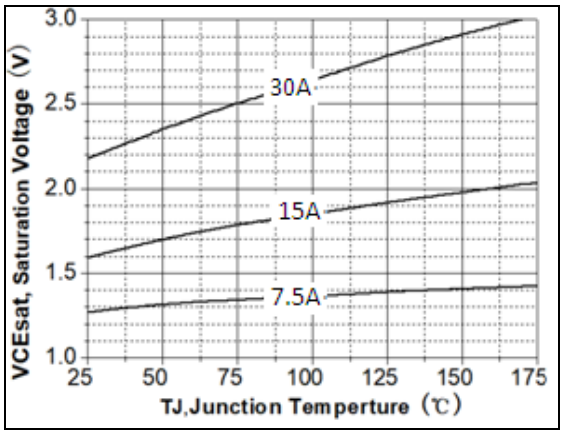
Output Characteristics T_J=25°C



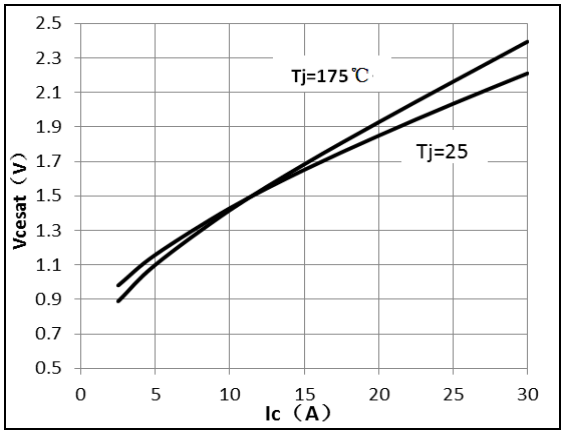
Output Characteristics T_J=175°C



V_{CESAT} vs T_J

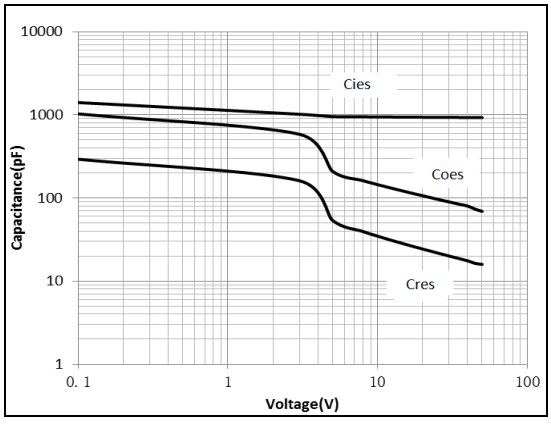


V_{CESAT} vs I_C

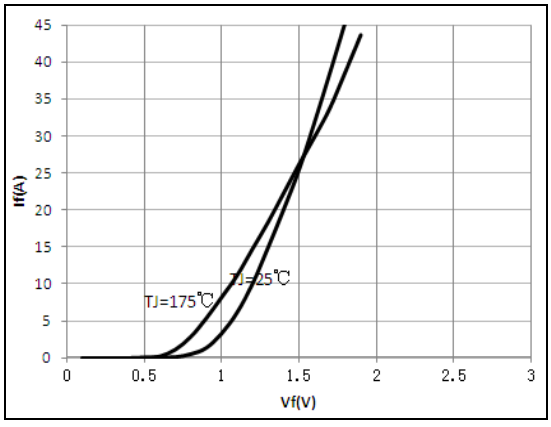


Capacitance Characteristic

VGE =0V,f=1.0MHZ

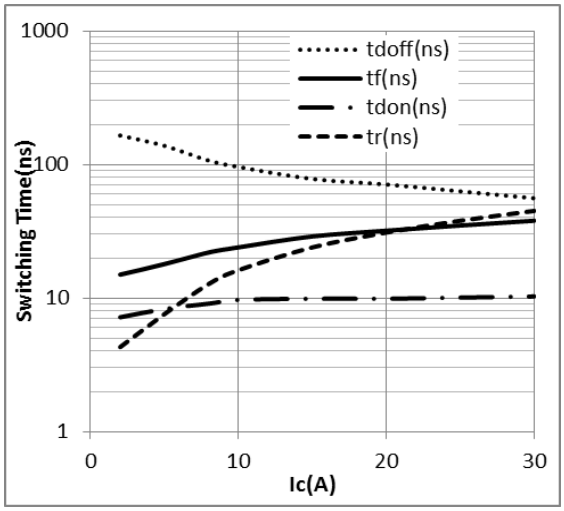


Diode Characteristic



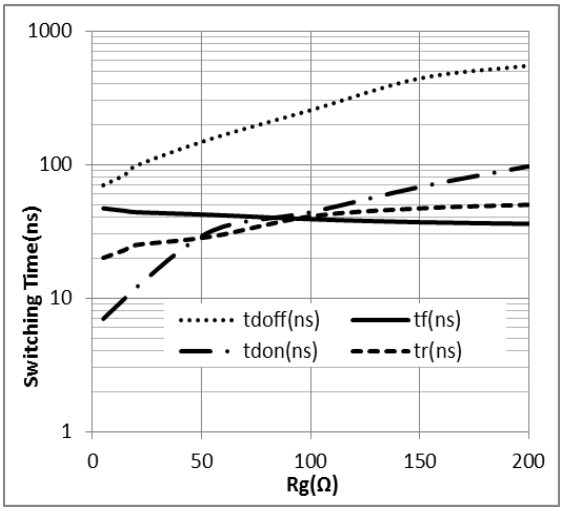
SwitchingTime vs. I_C

T_J=175°C,V_{GE}=15V,V_{CE}=400V,R_g=12Ω



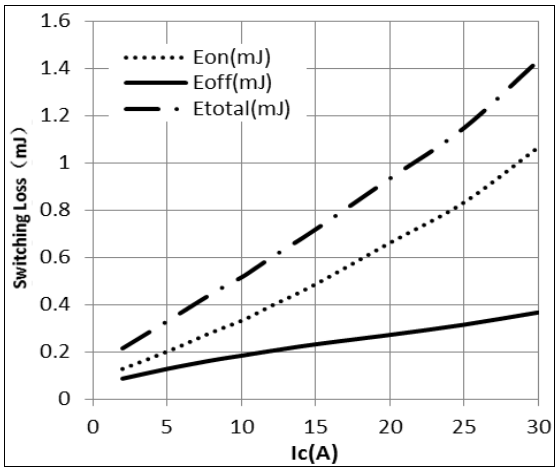
SwitchingTime vs. R_g

T_J=175°C,V_{GE}=15V,V_{CE}=400V,I_C=15A



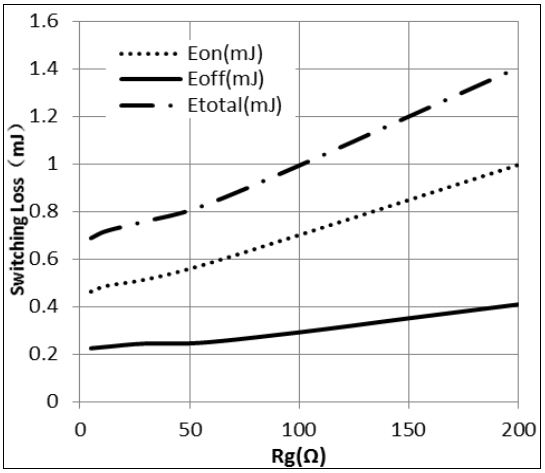
Switching Loss vs. I_C

T_J=175°C,V_{GE}=15V,V_{CE}=400V,R_g=12Ω



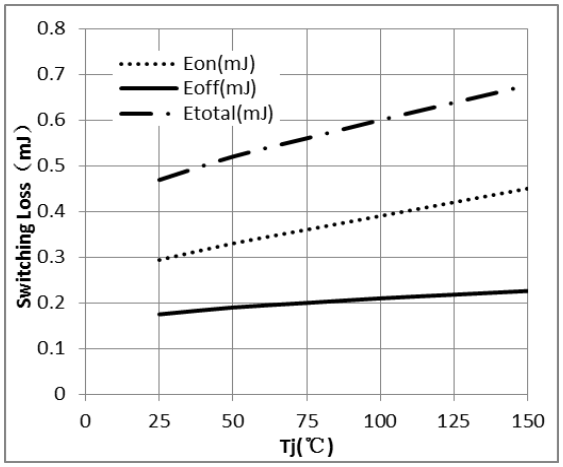
Switching Loss vs. R_g

T_J=175°C,V_{GE}=15V,V_{CE}=400V,I_C=15A



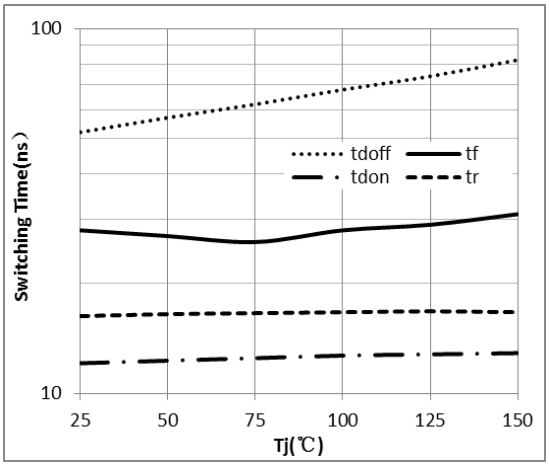
Switching Loss vs. T_J

V_{GE}=15V,V_{CE}=400V,I_C=15A R_g=12Ω



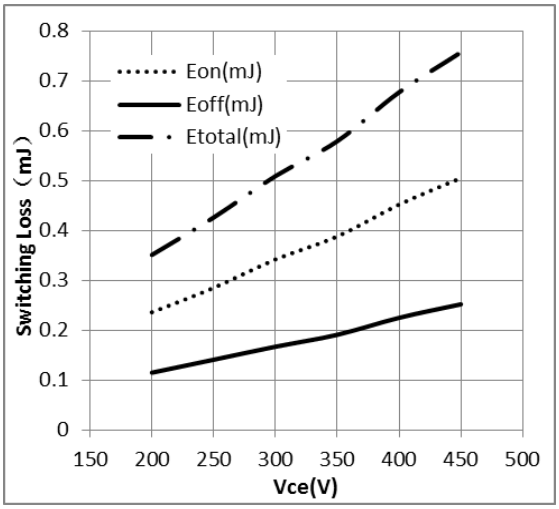
Switching Time vs. T_J

V_{GE}=15V,V_{CE}=400V,I_C=15A R_g=12Ω

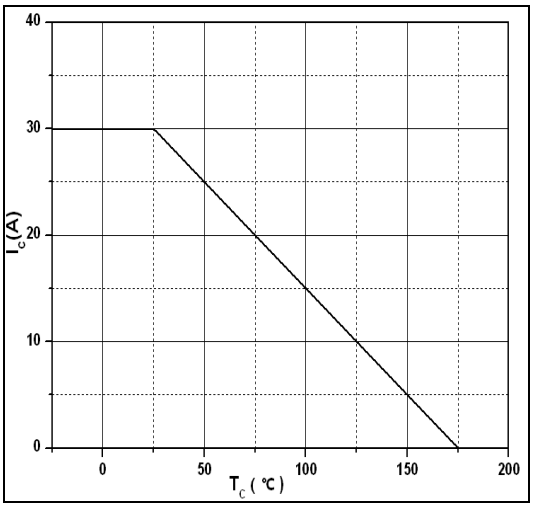


Switching Loss vs. V_{CE}(V)

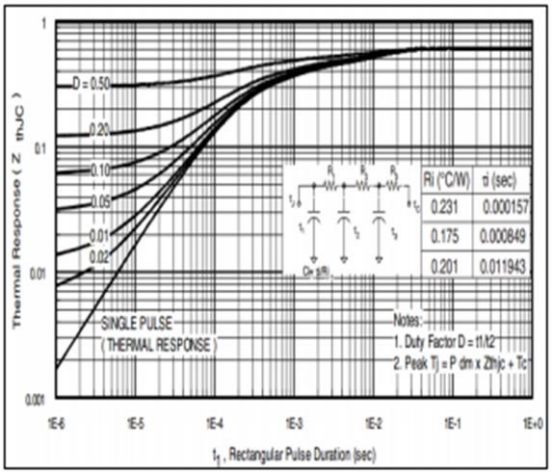
T_J=175°C,V_{GE}=15V,I_C=15A,R_g=12Ω



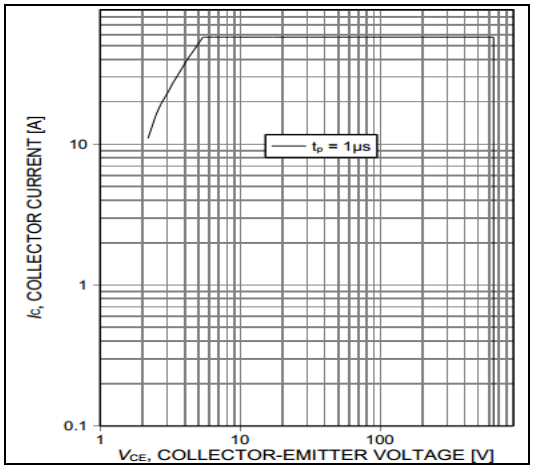
Ic vs. Tc



Normalized Maximum Transient Thermal Impedance for TO-247

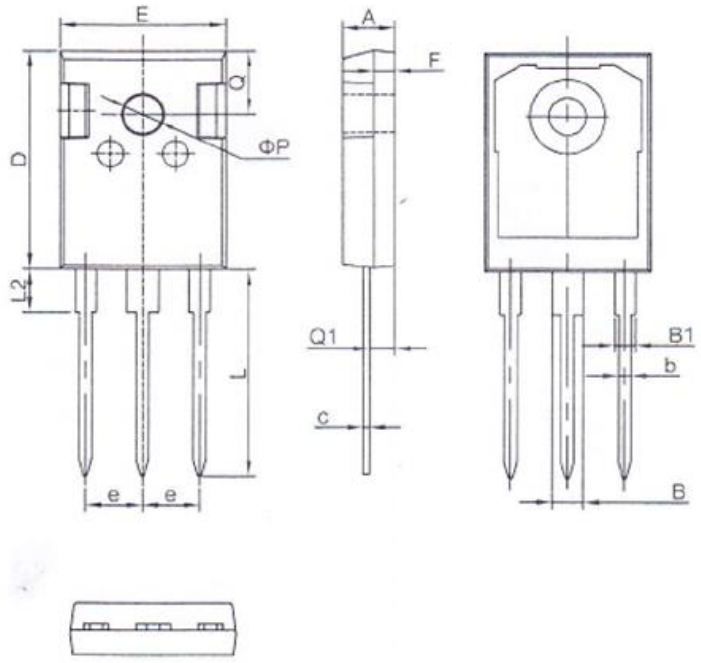


Safe Operating Area



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

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