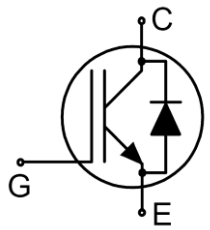
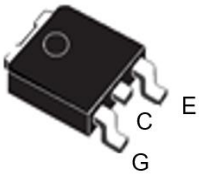
JT05N065RAD/VAD/SAD

主要参数 MAIN CHARACTERISTICS

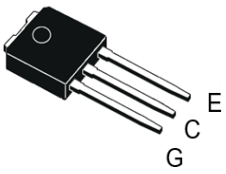
I_C	5 A
V_{CES}	650V
$V_{cesat-typ}(V_{ge}=15V)$	1.7V

封装 **Package**

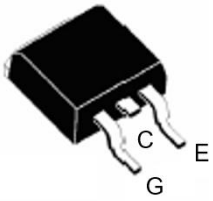




DPAK



IPAK



TO-263

用途 APPLICATIONS

- 逆变器 General purpose inverters
- PDP PDP
- 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 saturation voltage
- RoHS 产品 RoHS product

订货信息 ORDER MESSAGE

订 货 型 号 Order codes		印 记 Marking	封 装 Package
无卤-条管 Non halogen-Tube	无卤-编带 Non halogen-Reel		
JT05N065RAD-R-BR	JT05N065RAD-R-AR	JT05N065RAD	DPAK
JT05N065VAD-V-BR	N/A	JT05N065VAD	IPAK
JT05N065SAD-S-BR	JT05N065SAD-S-AR	JT05N065SAD	TO-263

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 **Parameter**	符 号 **Symbol**	数 值 **Value**		单位 **Unit**
		JT05N065RAD/VAD	JT05N065SAD	
最高集电极－发射极直流电压 Collector-Emitter Voltage	V_{ce}	650	650	V
*连续集电极电流 Collector Current-continuous	I_C T=25℃	10	10	A
	T=100℃	5	5	A
最大脉冲集电极极电流（注 1） Collector Current – pulse （note 1）	I_{CM}	20	20	A
最高栅极发射极电压 Gate-Emitter Voltage	V_{GE}	±30	±30	V
安全工作区电流 Turn-off safe area	-	20	20	A
耗散功率 Power Dissipation	P_D T_C=25℃	59.5	96	W
最高结温及存储温度 Operating and Storage Temperature Range	Tv_J，T_{STG}	-55～+150	-55～+150	℃
引线最高焊接温度 Maximum Lead Temperature for Soldering Purposes	T_L	300	300	℃

*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-Emitter 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	μA
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-Emitter saturation Voltage	V_{CESAT}	V_{GE}=15V I_C=5A Tj=25℃	-	1.7	2.05	V
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1.0MHz, Tj=25℃	-	289	-	pF
输出电容 Output capacitance	C_{oes}		-	32.7	-	pF
反向传输电容 Reverse transfer capacitance	C_{res}		-	7.4	-	pF
栅极电荷总量-Total Gate Charge	Qg	VCC=400V,Ic=5A,RG=10Ω VGE=15 V Tj=25℃	-	11.8	-	nC
栅极-发射极电荷 Gate to Emitter charge	Qge		-	2.57	-	
栅极-集电极电荷 Gate to collector charge	Qgc		-	5.1	-	
栅极电阻 Gate resistance	Rg	f=1 MHz, open collector	-	1.6	-	Ω
短路电流- Short current	Isc	V_{GE}=15V V_{CE}=400V T_{Jstart}≤150℃ t_{sc}≤10μs	-	30	-	A

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	t_d(on)	V_{CC}=400V,I_c=5A,R_G=60Ω V_{GE}=15 V T_j=25℃	-	22	-	ns
上升时间 Turn-on rise time	t_r		-	13	-	ns
关断延迟时间 Turn-off delay time	t_d(off)		-	91	-	ns
下降时间 Turn-off Fall time	t_f		-	25	-	ns
开通损耗 Turn-on energy	Eon		-	123	-	μJ
关断损耗 Turn-off energy	Eoff		-	53	-	μJ
总开关损耗 Total switching energy	Etot		-	176	-	μJ
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=5A , Tj=25℃	-	1.5	2.2	V
反向恢复时间 Diode Reverse recovery time	t_{rr}	V_{GE}=0V, V_R=400V I_F=5A dI_F/dt=200A/μs, Tj=25℃	-	33	-	ns
反向恢复电荷 Diode Reverse recovery charge	Qrr		-	145	-	nC
反向恢复电流 Diode Reverse recovery Current	I_{RRM}		-	2.7	-	A

项　　目 Parameter	符　号 Symbol	最大值 Max		单 位 Unit
		JT05N065RAD/VAD	JT05N065SAD	
结到管壳的热阻-IGBT Thermal Resistance, Junction to Case	$R_{th(j-c)}$	2.1	1.3	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	110	60	℃/W

注释：

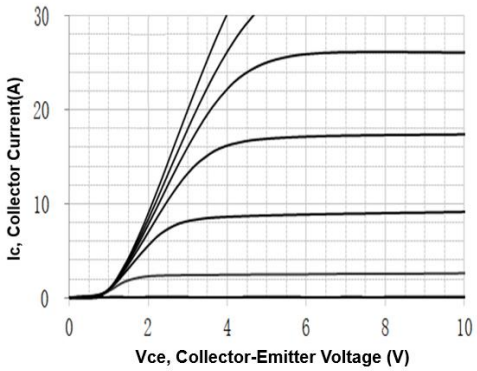
1：脉冲宽度由最高结温限制

Notes:

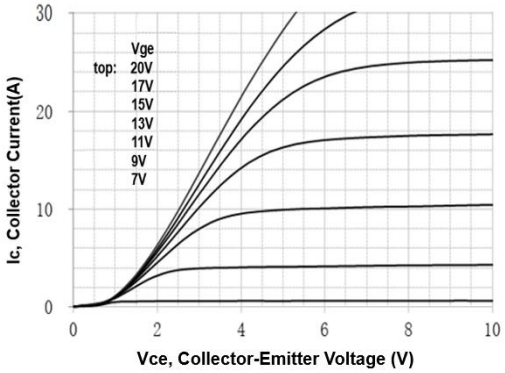
1：Pulse width limited by maximum junction temperature

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

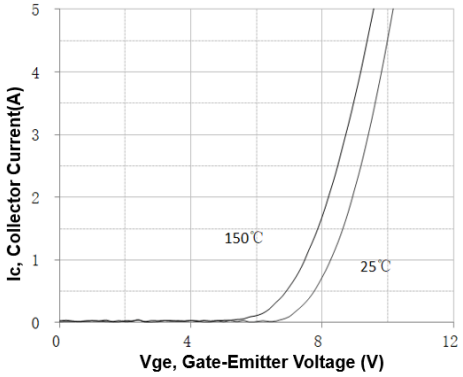
Output Characteristics
Tj=25℃



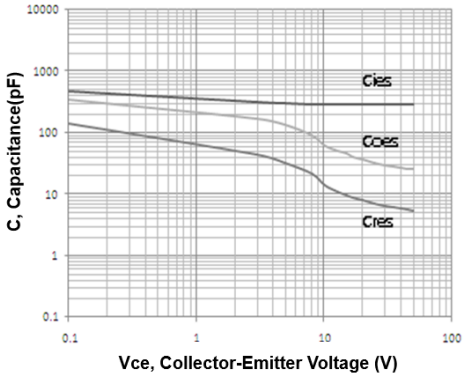
Output Characteristics
Tj=150℃



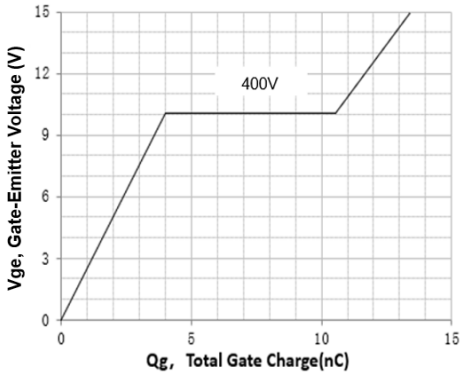
Typical Transfer Characteristics



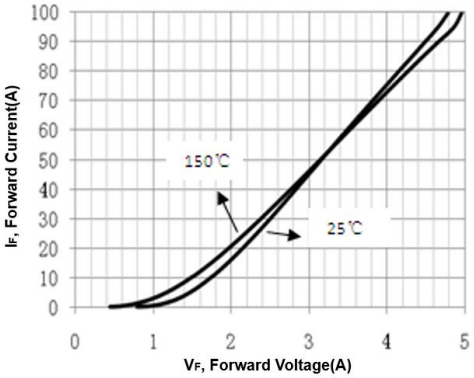
Capacitance Characteristics



Gate Charge Characteristics

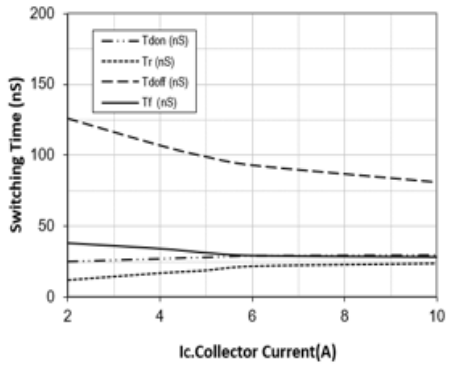


Diode Characteristic



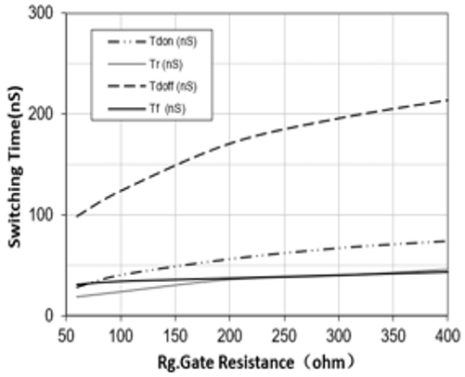
Switching Time vs Ic

Tj=150℃,Vge=15V,Vce=400V,Rg=60Ω



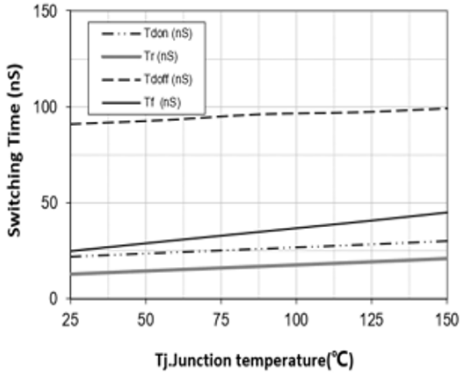
Switching Time vs Rg

Tj=150℃,Vge=15V,Vce=400V,Ic=5A



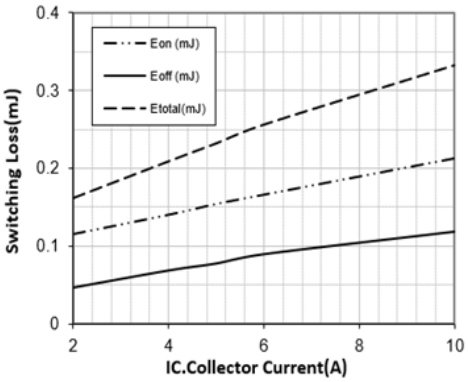
Switching Time vs TJ

Vge=15V,Vce=400V,Rg=60Ω,Ic=5A



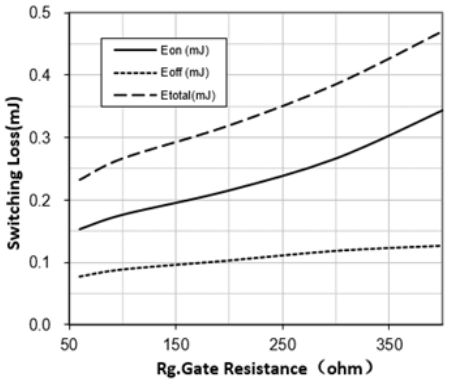
Switching Loss vs Ic

Tj=150℃,Vge=15V,Vce=400V,Rg=60Ω



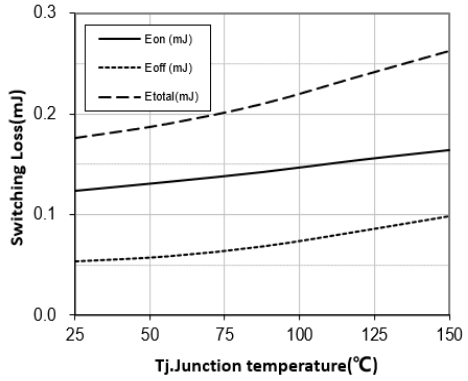
Switching Loss vs Rg

Tj=150℃,Vge=15V,Vce=400V,Ic=5A



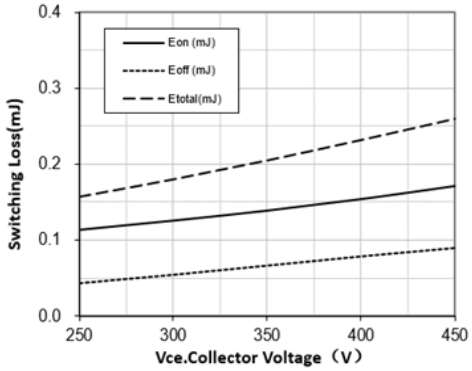
Switching Loss vs TJ

Vge=15V,Vce=400V,Ic=5A,Rg=60Ω



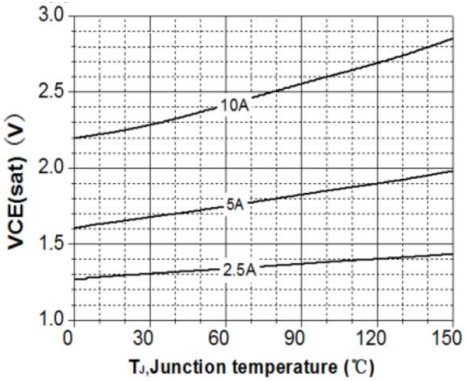
Switching Loss vs Vce

Tj=150℃,Vge=15V,Ic=5A, Rg=60Ω

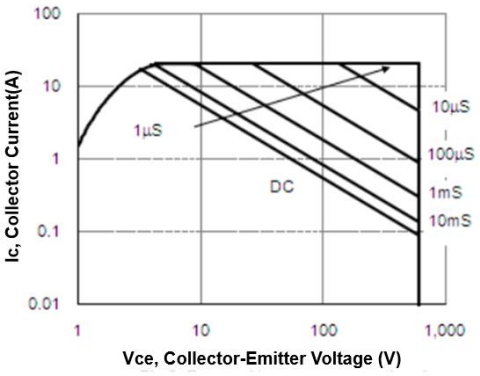


Vcesat vs TJ

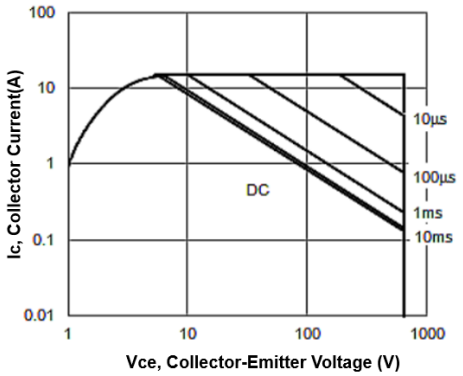
Vge =15V



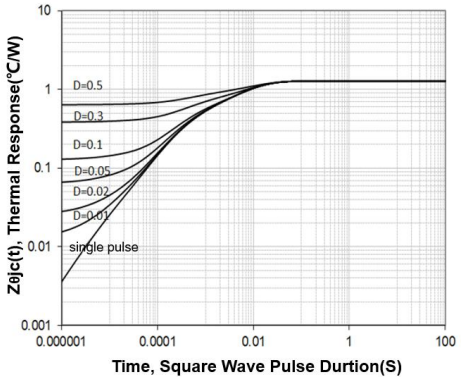
SOA Characteristics For DPAK/IPAK



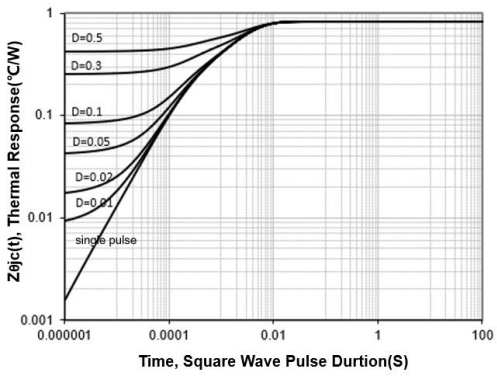
SOA Characteristics For TO-263



Transient Thermal Impedance For DPAK/IPAK(IGBT)



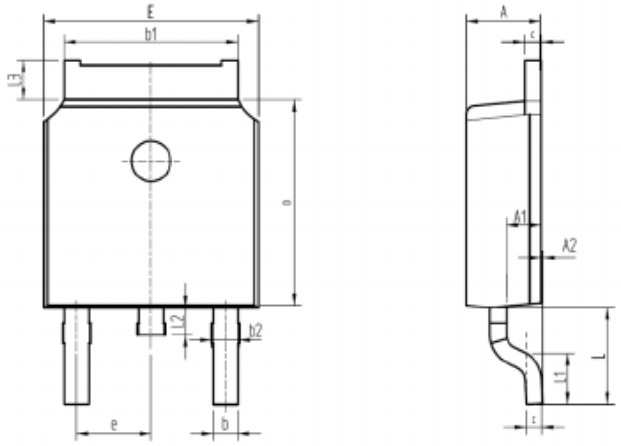
Transient Thermal Impedance For TO-263(IGBT)



外形尺寸 PACKAGE MECHANICAL DATA

DPAK

单位 Unit：mm

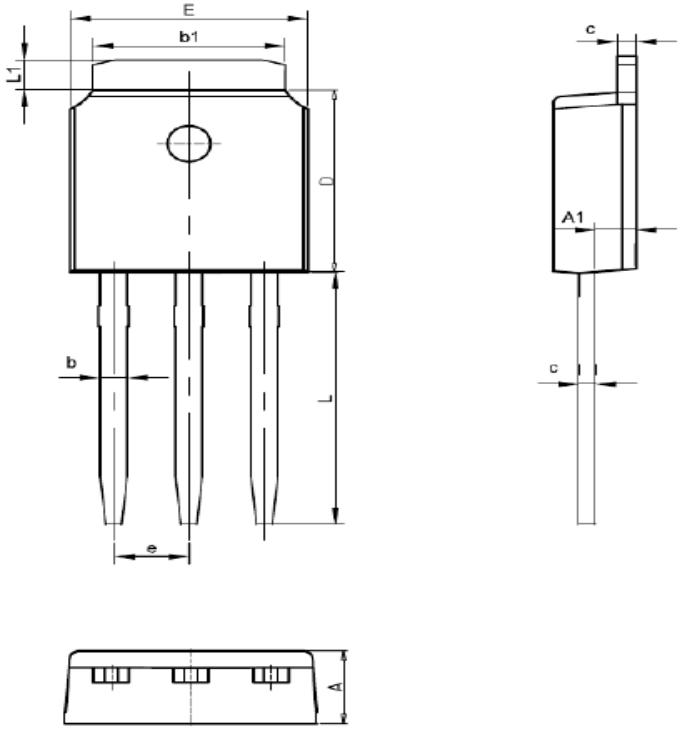


SYMBOL	mm	
	MIN	MAX
A	2.16	2.41
A1	0.97	1.17
A2	0.00	0.15
b	0.63	0.93
b1	5.13	5.53
b2	0.66	0.96
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
L	2.50	3.30
L1	1.20	1.80
L2	0.60	1.00
L3	0.85	1.30

外形尺寸 PACKAGE MECHANICAL DATA

IPAK

单位 Unit：mm

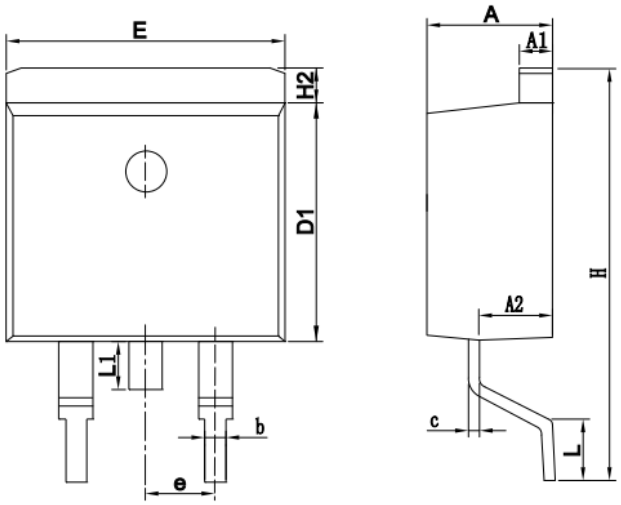


SYMBOL	MM	
	MIN	MAX
A	2.1	2.5
A1	0.87	1.27
b	0.63	0.93
b1	5.13	5.53
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
L	9.10	9.70
e	2.286BSC	
L1	0.82	1.22

外形尺寸 PACKAGE MECHANICAL DATA

TO-263

单位 Unit：mm



SYMBOL	MM	
	MIN	MAX
A	4.30	4.80
A1	1.12	1.42
A2	2.54	2.84
b	0.67	1.00
c	0.29	0.52
D1	8.40	9.00
E	9.80	10.46
e	2.54BSC	
H	14.00	16.00
H2	1.12	1.45
L	1.50	3.10
L1	1.45	1.70

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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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