



JT05N065RAD/VAD/SAD

主要参数 MAIN CHARACTERISTICS

| | |
|---|------|
| I _c | 5 A |
| V _{CES} | 650V |
| V _{cesat-typ} (V _{ge} =15V) | 1.7V |

用途

- 逆变器
- PDP
- UPS 电源

APPLICATIONS

- General purpose inverters
- PDP
- UPS

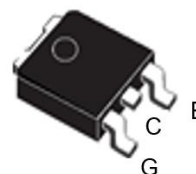
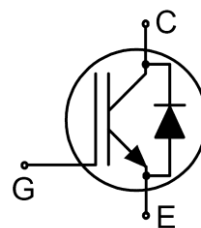
产品特性

- 低栅极电荷
- FS 技术
- 通态压降
- RoHS 产品

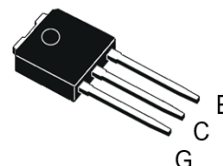
FEATURES

- Low gate charge
- FS Technology
- saturation voltage
- RoHS product

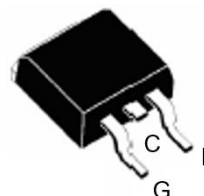
封装 Package



DPAK



IPAK



TO-263

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℃ T=100℃ | 10 | 10 | A |
| | | 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 | T _{VJ} , 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} | $I_C=250\mu A, V_{GE}=0V$ | 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 $25^\circ C$ | - | 0.5 | - | $V/^\circ C$ |
| 零栅压下集电极漏电流 Zero Gate Voltage Collector Current | I_{CES} | $V_{CE}=650V, V_{GE}=0V, T_C=25^\circ C$ | - | - | 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 | $V_{GE(th)}$ | $V_{CE} = V_{GE}, I_C=250\mu A$ | 4.5 | - | 6.5 | V |
| 饱和压降 Collector-Emitter saturation Voltage | V_{CESAT} | $V_{GE}=15V, I_C=5A, T_J=25^\circ C$ | - | 1.7 | 2.05 | V |
| 动态特性 Dynamic Characteristics | | | | | | |
| 输入电容 Input capacitance | C_{ies} | $V_{CE}=25V, V_{GE}=0V, f=1.0MHz, T_J=25^\circ C$ | - | 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 | Q_g | $V_{CC}=400V, I_C=5A, R_G=10\Omega, V_{GE}=15V, T_J=25^\circ C$ | - | 11.8 | - | nC |
| 栅极-发射极电荷 Gate to Emitter charge | Q_{ge} | | - | 2.57 | - | |
| 栅极-集电极电荷 Gate to collector charge | Q_{gc} | | - | 5.1 | - | |
| 栅极电阻 Gate resistance | R_g | $f=1MHz$, open collector | - | 1.6 | - | Ω |
| 短路电流- Short current | I_{sc} | $V_{GE}=15V, V_{CE}=400V, T_{Jstart} \leq 150^\circ C, t_{sc} \leq 10\mu s$ | - | 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 | $t_{d(on)}$ | $V_{CC}=400V, I_c=5A, R_G=60\Omega$ $V_{GE}=15V$ $T_j=25^\circ C$ | - | 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 | E_{on} | | - | 123 | - | μJ |
| 关断损耗 Turn-off energy | E_{off} | | - | 53 | - | μJ |
| 总开关损耗 Total switching energy | E_{tot} | | - | 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 | $V_{GE}=0V, I_F=5A, T_j=25^\circ C$ | - | 1.5 | 2.2 | V |
| 反向恢复时间 Diode Reverse recovery time | t_{rr} | $V_{GE}=0V, V_R=400V, I_F=5A$ $di_F/dt=200A/\mu s, T_j=25^\circ C$ | - | 33 | - | ns |
| 反向恢复电荷 Diode Reverse recovery charge | Q_{rr} | | - | 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 | $^\circ C/W$ |
| 结到环境的热阻 Thermal Resistance, Junction to Ambient | $R_{th(j-A)}$ | 110 | 60 | $^\circ C/W$ |

注释:

1: 脉冲宽度由最高结温限制

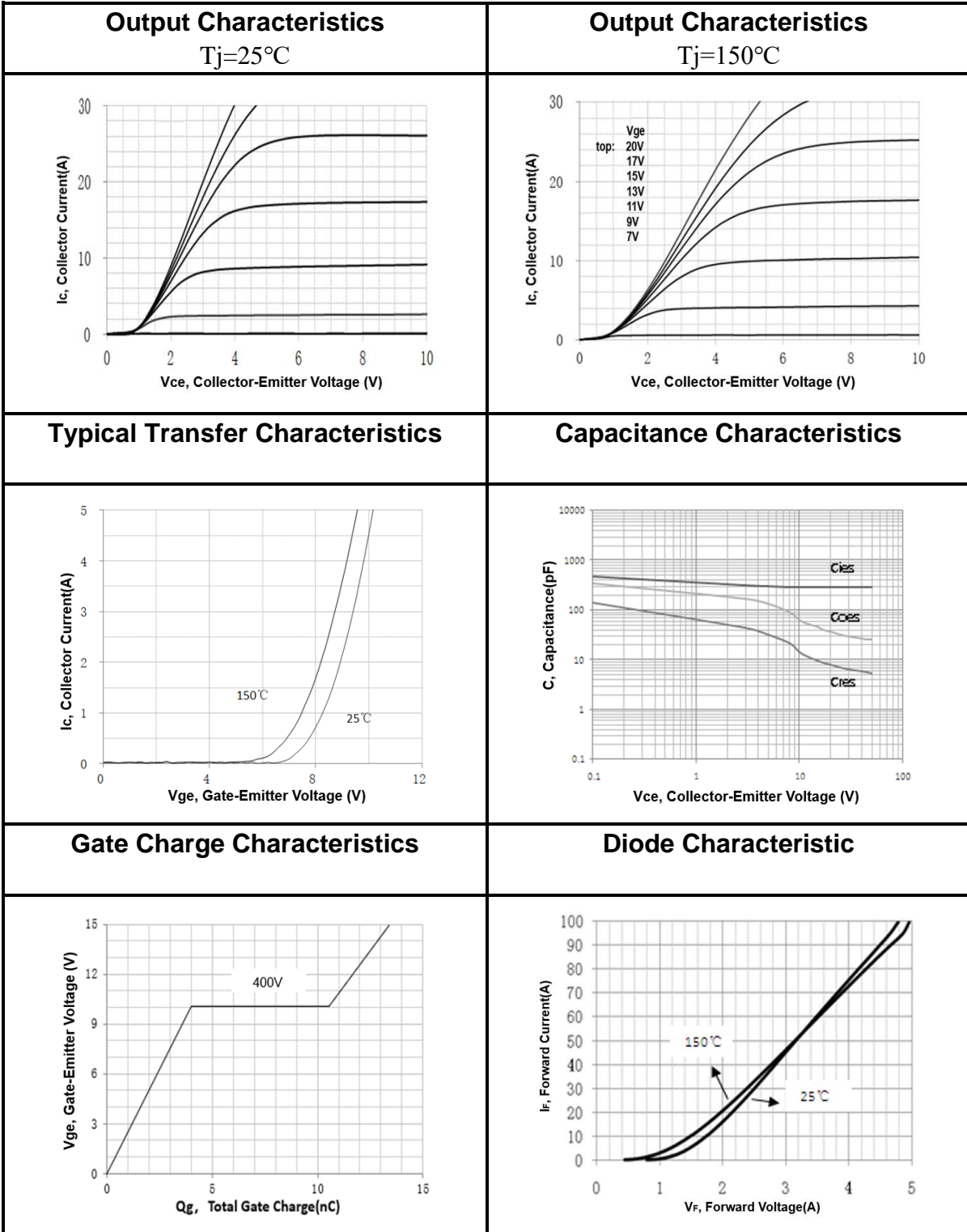
Notes:

1: Pulse width limited by maximum junction temperature



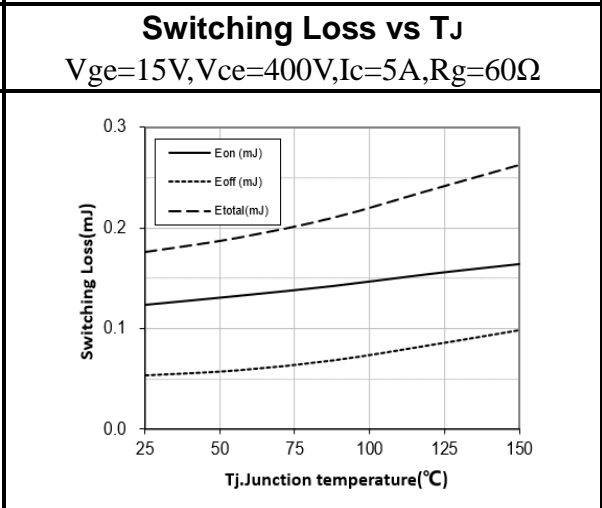
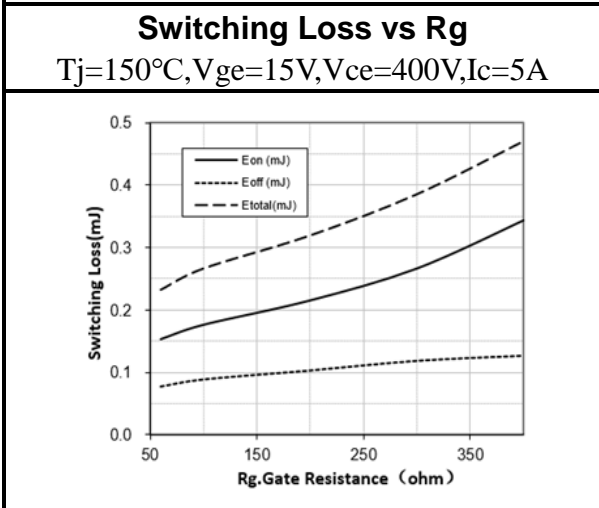
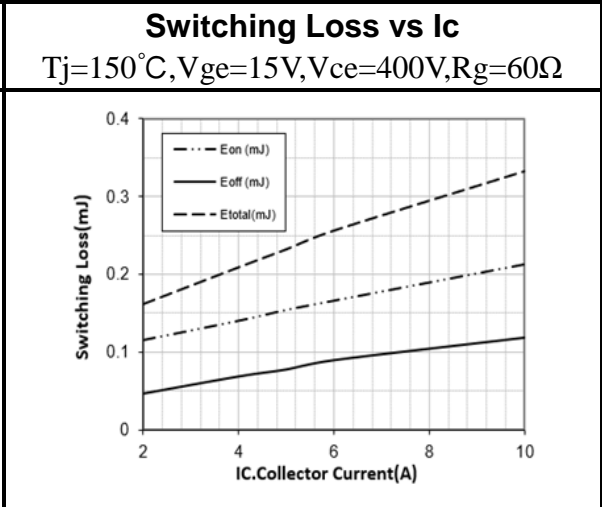
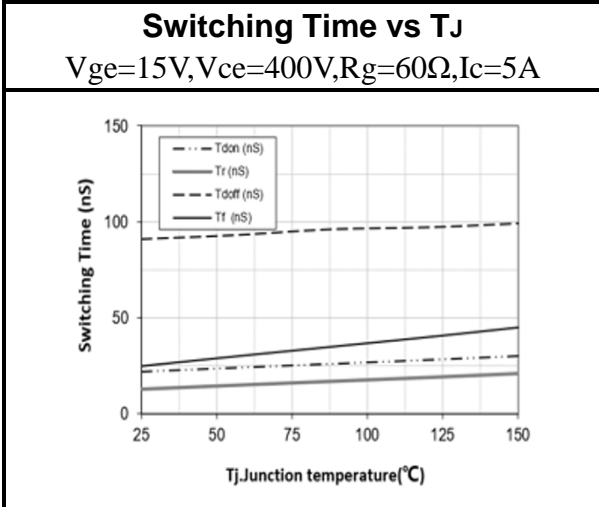
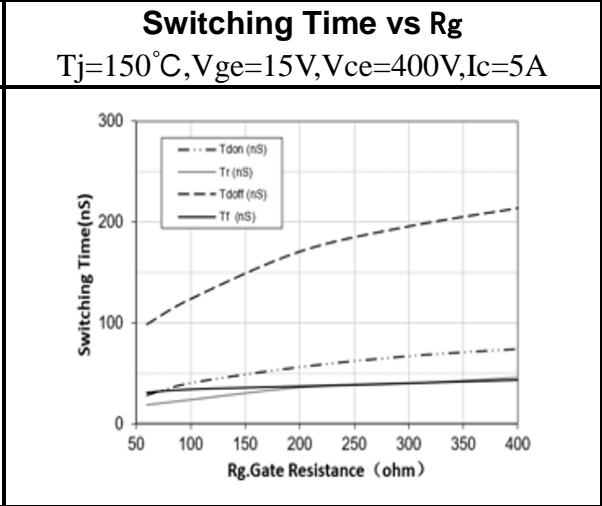
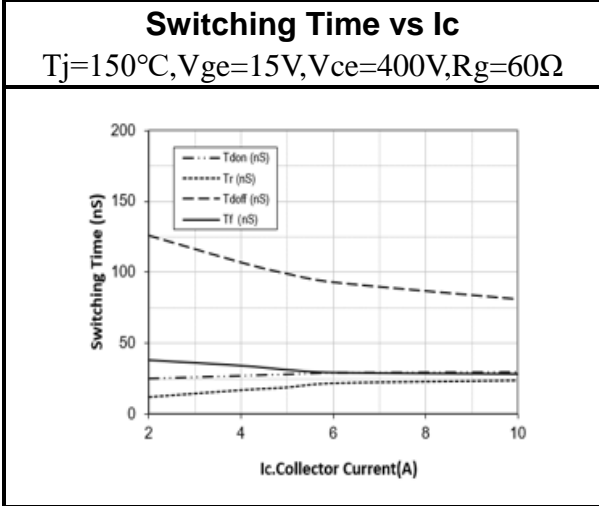


特征曲线 ELECTRICAL CHARACTERISTICS (curves)



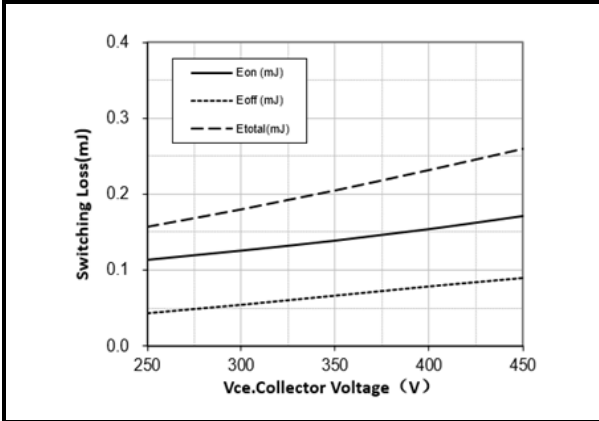


JT05N065RAD/VAD/SAD

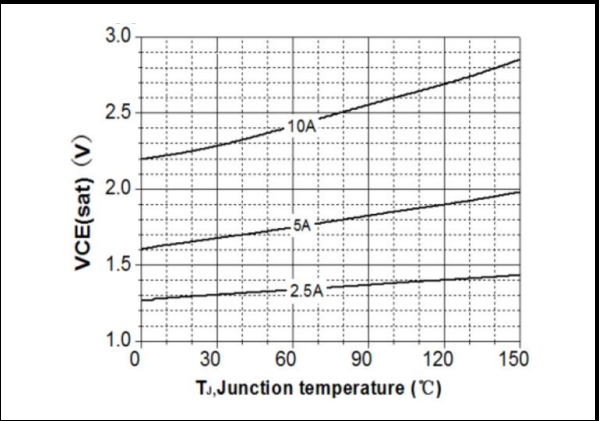




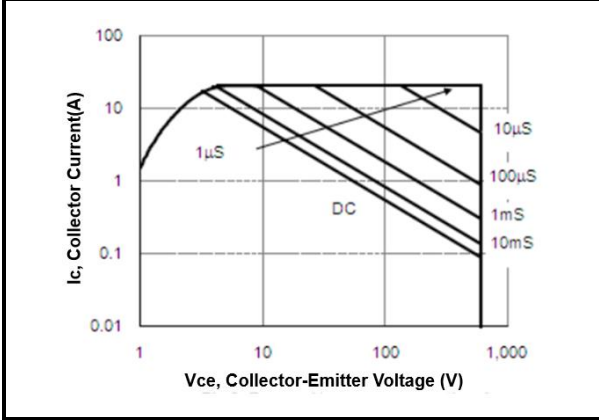
Switching Loss vs Vce
 $T_j=150^{\circ}\text{C}, V_{ge}=15\text{V}, I_c=5\text{A}, R_g=60\ \Omega$



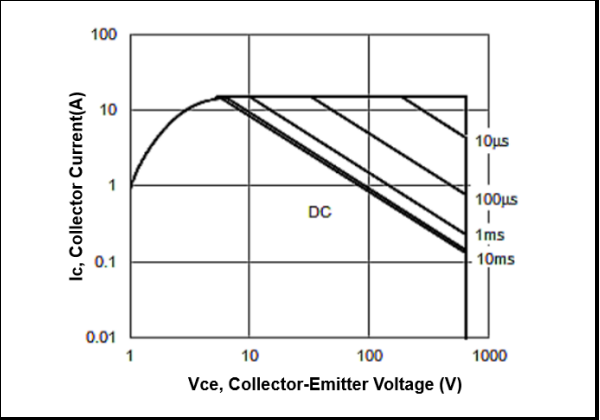
Vcesat vs TJ
 $V_{ge} = 15\text{V}$



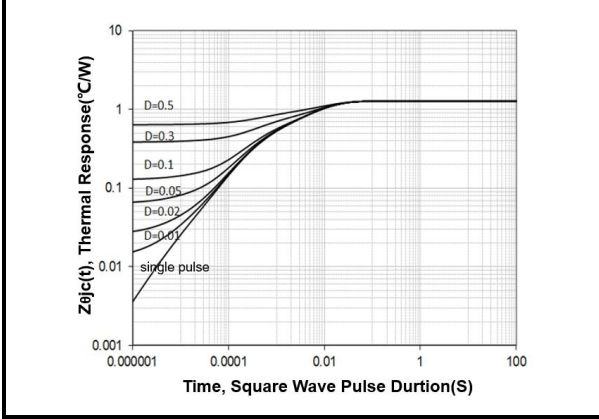
SOA Characteristics For DPAK/IPAK



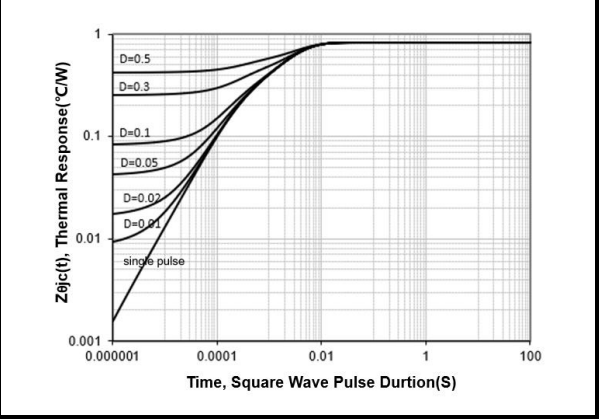
SOA Characteristics For TO-263



Transient Thermal Impedance For DPAK/IPAK(IGBT)



Transient Thermal Impedance For TO-263(IGBT)

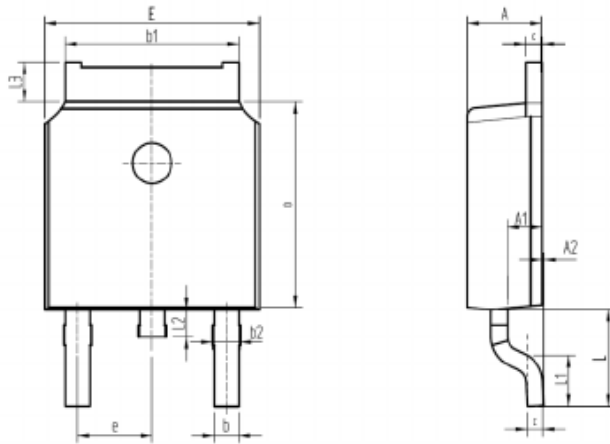




外形尺寸 PACKAGE MECHANICAL DATA

DPAK

单位 Unit: mm

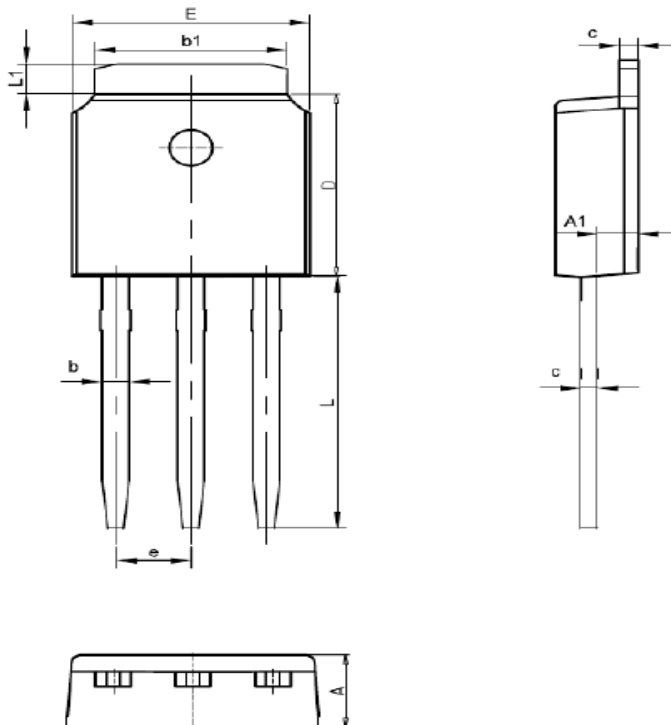


| SYMBOL | mm | |
|--------|----------|------|
| | MIN | MAX |
| A | 2.16 | 2.41 |
| A1 | 0.97 | 1.17 |
| A2 | 0.00 | 0.15 |
| b | 0.63 | 0.93 |
| b1 | 5.13 | 5.53 |
| b2 | 0.66 | 0.96 |
| c | 0.40 | 0.60 |
| D | 5.80 | 6.40 |
| E | 6.30 | 6.90 |
| e | 2.286BSC | |
| L | 2.50 | 3.30 |
| L1 | 1.20 | 1.80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

外形尺寸 PACKAGE MECHANICAL DATA

IPAK

单位 Unit: mm



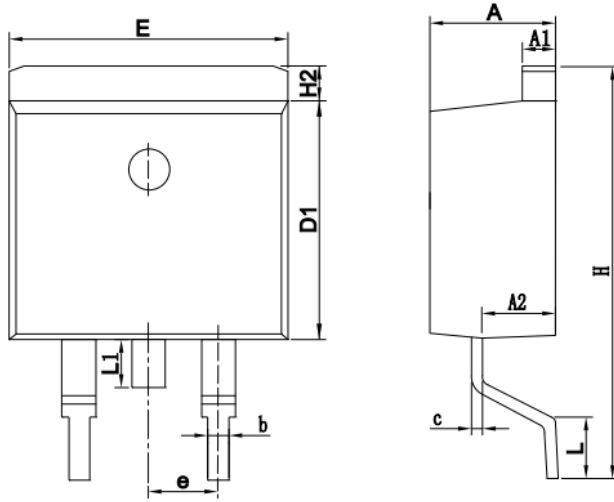
| SYMBOL | MM | |
|--------|----------|------|
| | MIN | MAX |
| A | 2.1 | 2.5 |
| A1 | 0.87 | 1.27 |
| b | 0.63 | 0.93 |
| b1 | 5.13 | 5.53 |
| c | 0.40 | 0.60 |
| D | 5.80 | 6.40 |
| E | 6.30 | 6.90 |
| L | 9.10 | 9.70 |
| e | 2.286BSC | |
| L1 | 0.82 | 1.22 |



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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