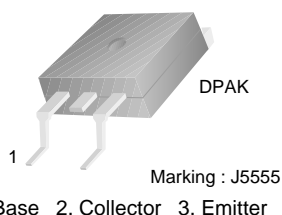


FJD5555

NPN Silicon Transistor

High Voltage Switch Mode Application

- Fast Speed Switching
- Wide Safe Operating Area
- Suitable for Electronic Ballast Application



Absolute Maximum Ratings * $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|------------|------------------------------------|------------|------------------|
| BV_{CBO} | Collector-Base Voltage | 1050 | V |
| BV_{CEO} | Collector-Emitter Voltage | 400 | V |
| BV_{EBO} | Emitter-Base Voltage | 14 | V |
| I_C | Collector Current (DC) | 5 | A |
| I_{CP} | Collector Current (Pulse) | 10 | A |
| I_B | Base Current (DC) | 2 | A |
| I_{BP} | Collector Current (Pulse) | 4 | A |
| P_C | Collector Dissipation. | 1.34 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Junction Temperature Range | - 55 ~ 150 | $^\circ\text{C}$ |

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------------|---|-------|---------------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 95 | $^\circ\text{C}/\text{W}$ |

* Device mounted on minimum pad size

Package Marking and Ordering Information

| Part Number | Marking | Package | Packing Method | Remarks |
|-------------|---------|---------|----------------|---------|
| FJD5555TM | J5555 | D-PAK | Tape & Reel | |

Electrical Characteristics * $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Conditions | Min. | Typ. | Max | Units |
|----------------------|--------------------------------------|--|------|------|-----|---------------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C=500\mu\text{A}, I_E=0$ | 1050 | | | V |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C=5\text{mA}, I_B=0$ | 400 | | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E=500\mu\text{A}, I_C=0$ | 14 | | | V |
| h_{FE} | DC Current Gain | $V_{CE}=5\text{V}, I_C=10\text{mA}$ | 10 | | | |
| | | $V_{CE}=3\text{V}, I_C=0.8\text{A}$ | 20 | | 40 | |
| $V_{CE}(\text{sat})$ | Collector-Emitter Saturation Voltage | $I_C=1\text{A}, I_B=0.2\text{A}$ | | 0.17 | 0.5 | V |
| | | $I_C=3.5\text{A}, I_B=1.0\text{A}$ | | | 1.5 | V |
| $V_{BE}(\text{sat})$ | Base-Emitter Saturation Voltage | $I_C=3.5\text{A}, I_B=1.0\text{A}$ | | | 1.2 | V |
| C_{ob} | Output Capacitance | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 45 | | pF |
| t_{ON} | Turn On Time | $V_{CC}=125\text{V}, I_C=0.5\text{A}$ $I_{B1}=45\text{mA}, I_{B2}=0.5\text{A}$ $R_L=250\Omega$ | | | 1.0 | μs |
| t_{STG} | Storage Time | | | | 1.2 | μs |
| t_F | Fall Time | | | 0.3 | | μs |
| t_{ON} | Turn On Time | $V_{CC}=250\text{V}, I_C=2.5\text{A}$ $I_{B1}=0.5\text{A}, I_{B2}=1.0\text{A}$ $R_L=100\Omega$ | | | 2.0 | μs |
| t_{STG} | Storage Time | | | | 2.5 | μs |
| t_F | Fall Time | | | | 0.3 | μs |
| EAS | Avalanche Energy | $L=2\text{mH}$ | 6 | | | mJ |

* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Typical Characteristics

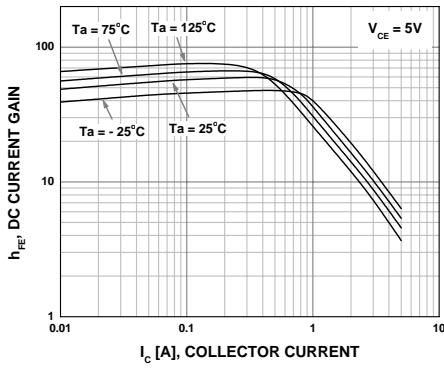


Figure 1. DC Current Gain

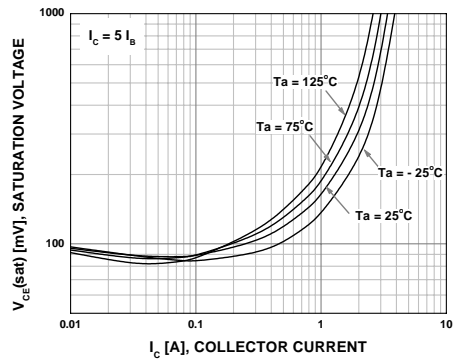


Figure 2. Saturation Voltage

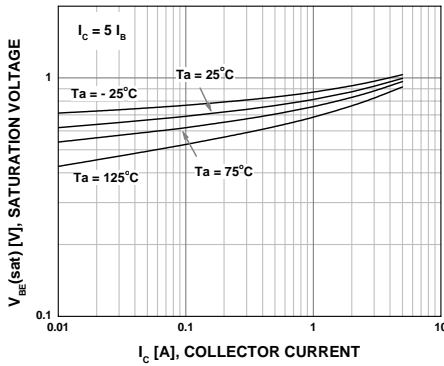


Figure 3. Saturation Voltage

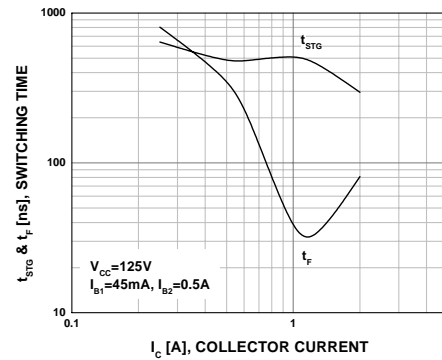


Figure 4. Resistive Load Switching

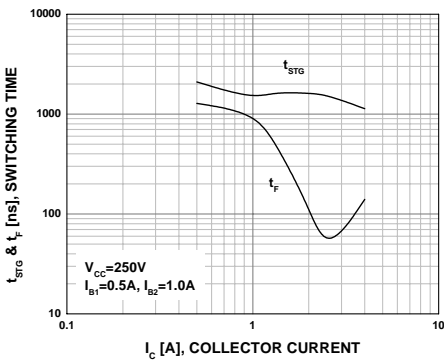


Figure 5. Resistive Load Switching

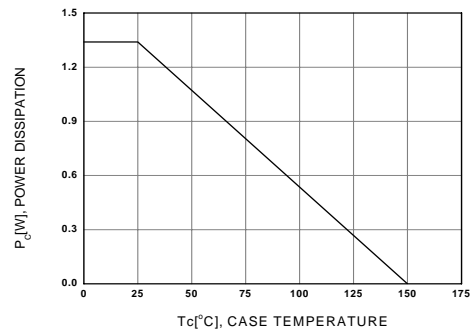
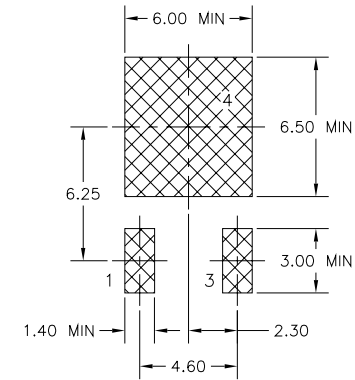
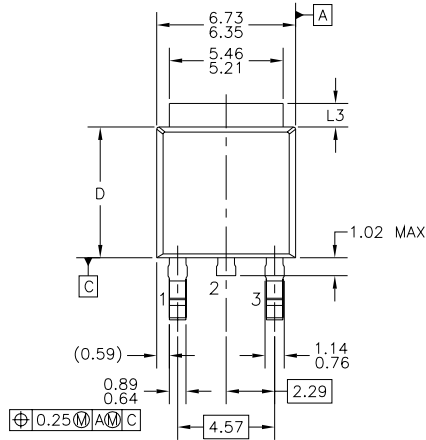


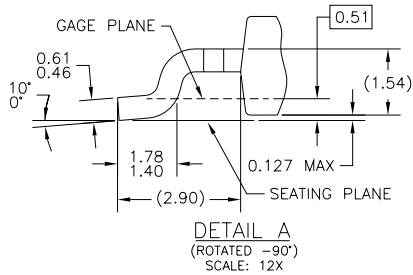
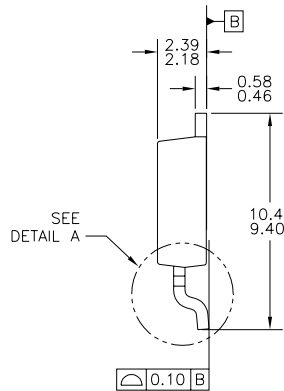
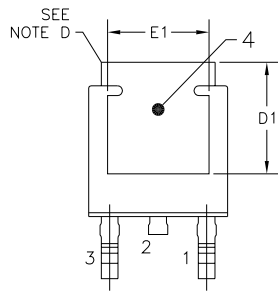
Figure 6. Power Derating

Mechanical Dimensions

D-PAK



LAND PATTERN RECOMMENDATION



NOTES: UNLESS OTHERWISE SPECIFIED

- A) ALL DIMENSIONS ARE IN MILLIMETERS.
- B) THIS PACKAGE CONFORMS TO JEDEC, TO-252, ISSUE C, VARIATION AA & AB, DATED NOV. 1999.
- C) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
- D) HEAT SINK TOP EDGE COULD BE IN CHAMFERED CORNERS OR EDGE PROTRUSION.
- E) DIMENSIONS L3,D,E1&D1 TABLE:

| | OPTION AA | OPTION AB |
|----|-----------|-----------|
| L3 | 0.89-1.27 | 1.52-2.03 |
| D | 5.97-6.22 | 5.33-5.59 |
| E1 | 4.32 MIN | 3.81 MIN |
| D1 | 5.21 MIN | 4.57 MIN |

- F) PRESENCE OF TRIMMED CENTER LEAD IS OPTIONAL.

Dimensions in Millimeters



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| FACT [®] | Motion-SPM [™] | SPM [®] | μSerDes [™] |
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| FPS [™] |  [®] | SuperSOT [™] -3 | VCX [™] |
| FRFET [®] | PDP-SPM [™] | SuperSOT [™] -6 | |
| Global Power Resource SM | Power220 [®] | | |

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