

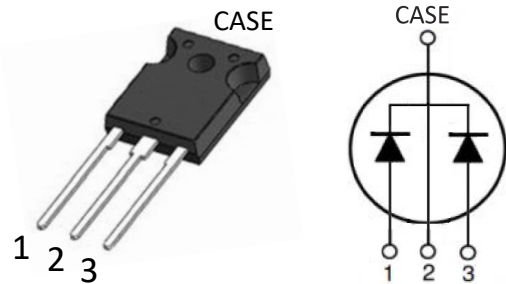
Features

- Ease of Paralleling
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behaviour
- High temperature operation
- High frequency operation

| Key Characteristics | | |
|-----------------------------------|-------|----|
| V_{RRM} | 650 | V |
| $I_F, T_c \leq 155^\circ\text{C}$ | 40** | A |
| Q_c | 112** | nC |

Benefits

- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements



Applications

- Switch Mode Power Supplies (SMPS)
- Boost diodes in PFC or DC/DC stages
- Motor drives
- Solar application, UPS
- Power Switching Circuits

| Part No. | Package Type | Marking |
|-----------|--------------|-----------|
| FSD4065P2 | TO-247-3 | FSD4065P2 |

* Per Leg, ** Per Device

Maximum Ratings

| Parameter | Symbol | Test Condition | Value | Unit |
|---|-----------|---|-----------------------------------|--------|
| Repetitive Peak Reverse Voltage | V_{RRM} | | 650 | V |
| Surge Peak Reverse Voltage | V_{RSM} | | 650 | V |
| DC Blocking Voltage | V_{DC} | | 650 | V |
| Continuous Forward Current | I_F | $T_C=25^{\circ}C$ $T_C=125^{\circ}C$ $T_C=155^{\circ}C$ | 60*/120** 31*/62** 20*/40** | A |
| Repetitive Peak Forward Surge Current | I_{FRM} | $T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave, $D=0.3$ | 100*/200** | A |
| Non-repetitive Peak Forward Surge Current | I_{FSM} | $T_C=25^{\circ}C$, $t_p=10ms$, Half Sine Wave | 175*/350** | A |
| Power Dissipation | P_{TOT} | $T_C=25^{\circ}C$ | 227* | W |
| | | $T_C=110^{\circ}C$ | 98* | W |
| Operating Junction | T_j | | -55°C to 175°C | °C |
| Storage Temperature | T_{stg} | | -55°C to 175°C | °C |
| Mounting Torque | | M3 Screw | 1 | Nm |
| | | 6-32 Screw | 8.8 | lbf-in |

Thermal Characteristics

| Parameter | Symbol | Test Condition | Value | Unit |
|--|------------|----------------|--------------|------|
| | | | Typ. | |
| Thermal resistance from junction to case | R_{thJC} | | 0.66*/0.33** | °C/W |

* Per Leg, ** Per Device



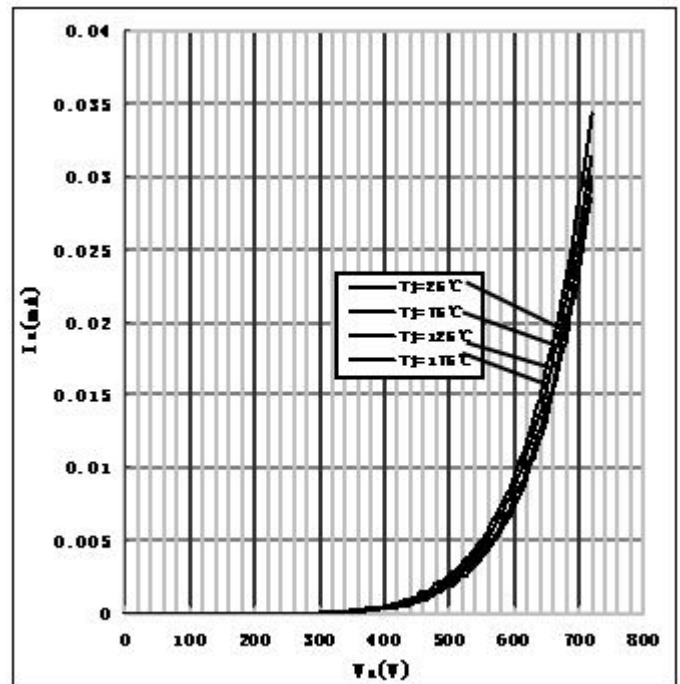
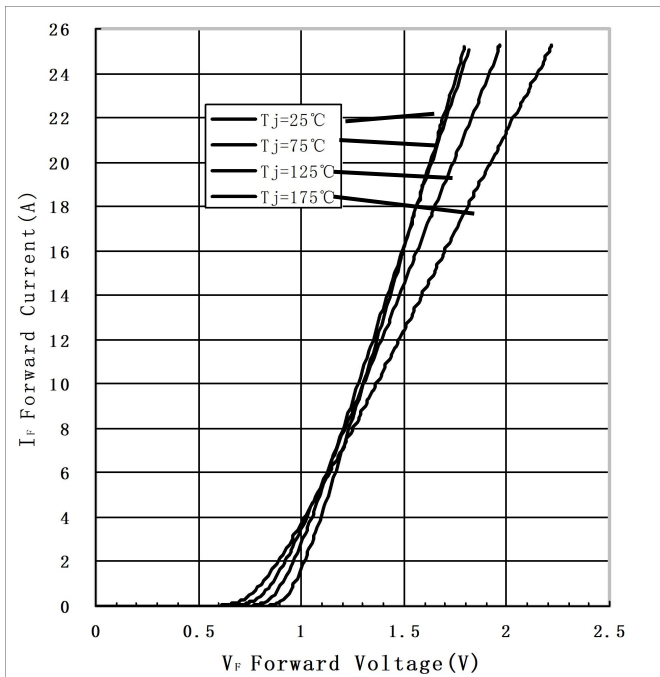
Electrical Characteristics (Per Leg)

| Parameter | Symbol | Test Conditions | Numerical | | Unit |
|-------------------------|----------------|--|-----------|------|------|
| | | | Typ. | Max. | |
| Forward Voltage | V _F | I _F =20A, T _j =25°C | 1.52 | 1.7 | V |
| | | I _F =20A, T _j =175°C | 1.8 | 2.5 | |
| Reverse Current | I _R | V _R =650V, T _j =25°C | 10 | 50 | μA |
| | | V _R =650V, T _j =175°C | 20 | 100 | |
| Total Capacitive Charge | Q _C | V _R =400V, T _j =150°C $Q_C = \int_0^{V_R} C(V)dV$ | 56 | - | nC |
| Total Capacitance | C | V _R =0V, T _j =25°C, f=1MHZ | 1170 | 1300 | pF |
| | | V _R =200V, T _j =25°C, f=1MHZ | 110 | 120 | |
| | | V _R =400V, T _j =25°C, f=1MHZ | 100 | 108 | |

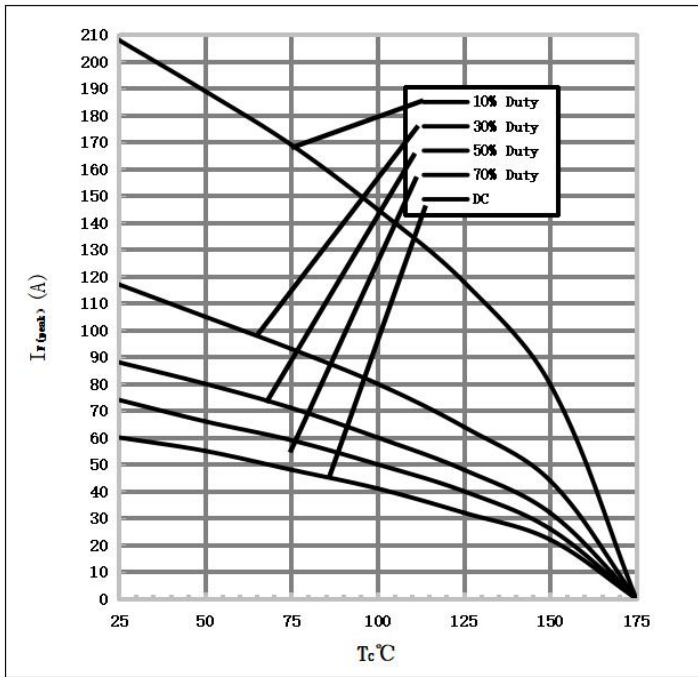
Performance Graphs (Per Leg)

1) Forward IV characteristics as a function of T_j :

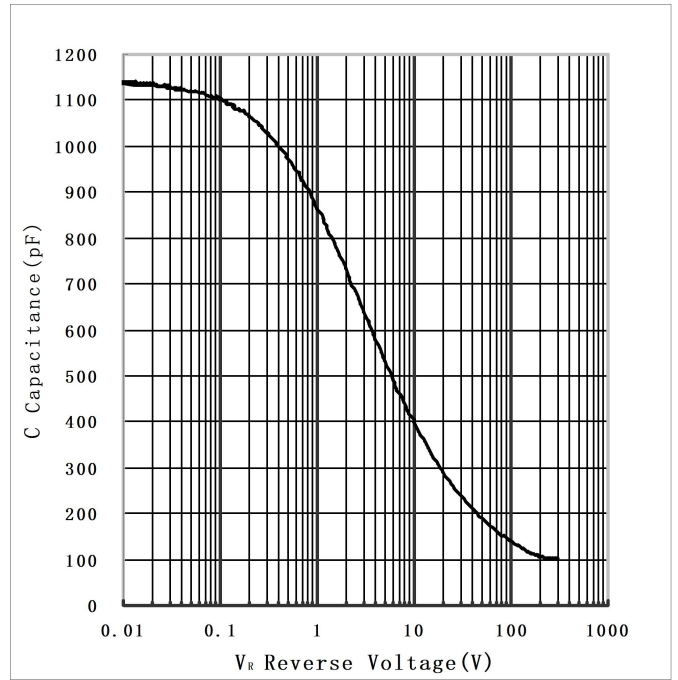
2) Reverse IV characteristics as a function of T_j :



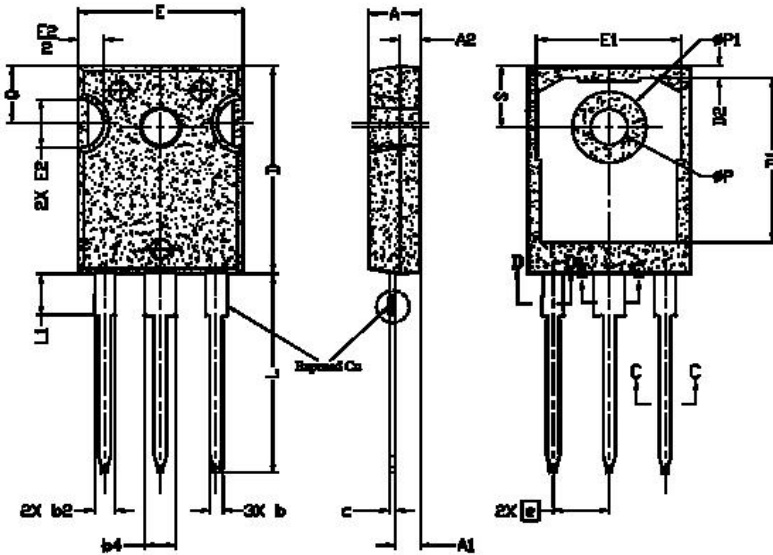
3) Current Derating



4) Capacitance vs. reverse voltage :



Package TO-247-3



| SYMBOL | DIMENSIONS | | | NOTES |
|--------|------------|-------|-------|-------|
| | MIN | NOM | MAX | |
| A | 4.83 | 5.02 | 5.21 | |
| A1 | 2.29 | 2.41 | 2.55 | |
| A2 | 1.50 | 2.00 | 2.49 | |
| b | 1.12 | 1.20 | 1.33 | |
| b1 | 1.12 | 1.20 | 1.28 | |
| b2 | 1.91 | 2.00 | 2.39 | 6 |
| b3 | 1.91 | 2.00 | 2.34 | |
| b4 | 2.87 | 3.00 | 3.22 | 6, 8 |
| b5 | 2.87 | 3.00 | 3.18 | |
| c | 0.55 | 0.60 | 0.69 | 6 |
| c1 | 0.55 | 6.00 | 0.65 | |
| D | 20.80 | 20.95 | 21.10 | 4 |
| D1 | 16.25 | 16.55 | 17.65 | 5 |
| D2 | 0.51 | 1.19 | 1.35 | |
| E | 15.75 | 15.94 | 16.13 | 4 |
| E1 | 13.46 | 14.02 | 14.16 | 5 |
| E2 | 4.32 | 4.91 | 5.49 | 3 |
| e | 5.44 BSC | | | |
| L | 19.81 | 20.07 | 20.32 | |
| L1 | 4.10 | 4.19 | 4.40 | 6 |
| ΦP | 3.56 | 3.61 | 3.65 | 7 |
| ΦP1 | 7.19 REF | | | |
| Q | 5.39 | 5.79 | 6.20 | |
| S | 6.04 | 6.17 | 6.30 | |

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