

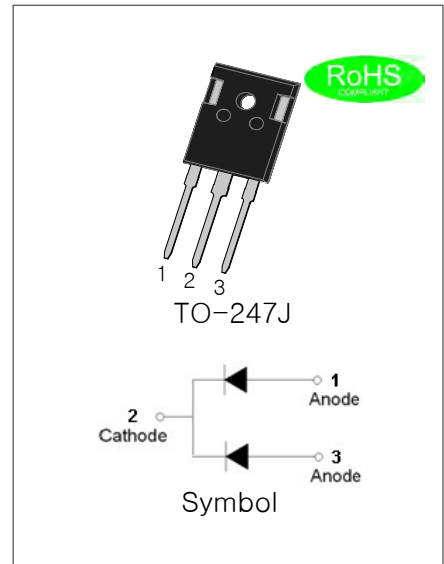
EPI ULTRA FAST RECOVERY RECTIFIER

DESCRIPTION

- Plastic package has underwriters laboratory flammability classification 94V-0
- Lead free in comply with EU RoHS 2011/65/EU directives
- Low reverse leakage current
- Ultra fast recovery time and soft recovery characteristics
- Low recovery loss

MECHANICAL DATA

- Case: TO-247J molded plastic over passivated junction
- Terminals: Solder plated, solderable per J-STD-002
- Weight:6gram



ABSOLUTE MAXIMUM RATING (Rating at 25°C ambient temperature unless otherwise specified.)

| Parameter | Symbol | FD30U60JD | Unit |
|--|----------------|------------------|------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 600 | V |
| Maximum RMS voltage | V_{RMS} | 420 | V |
| Maximum DC blocking voltage | V_{DC} | 600 | V |
| Average forward current at $T_C = 125^\circ\text{C}$ | $I_{F(AV)}$ | 60 | A |
| Peak forward surge current: 10ms single half sine-wave superimposed on rated load, per diode | I_{FSM} | 210 | A |
| Junction temperature and storage temperature range | T_j, T_{stg} | -55 to +150 | °C |

ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified.)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | |
|---|--------|---------------------------|------|------|------|----|
| Forward voltage @ $I_F = 30\text{A}$ | V_F | $T_j = 25^\circ\text{C}$ | - | - | 1.55 | V |
| | | $T_j = 150^\circ\text{C}$ | - | 1.1 | 1.25 | |
| Forward voltage @ $I_F = 60\text{A}$ | V_F | $T_j = 25^\circ\text{C}$ | - | - | 1.78 | V |
| | | $T_j = 150^\circ\text{C}$ | - | 1.3 | 1.55 | |
| DC reverse current at rated DC blocking voltage | I_R | $T_j = 25^\circ\text{C}$ | - | - | 5 | uA |
| | | $T_j = 150^\circ\text{C}$ | - | - | 300 | |

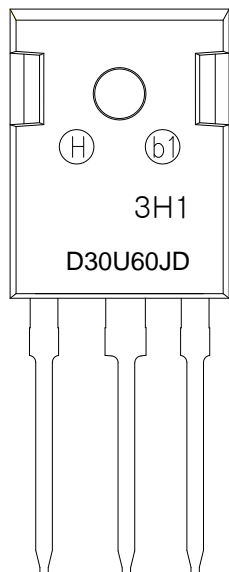
ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified continued.)

| Parameter | | Symbol | Min. | Typ. | Max. | Unit |
|--------------------------|---|----------|------|------|------|------|
| Reverse recovery time | $I_F=1A, V_R=30V,$ $di_F/dt=50A/\mu s, T_j=25^\circ C$ | t_{rr} | - | 48 | 75 | ns |
| | $I_F=30A, V_R=400V,$ $di_F/dt=200A/\mu s, T_j=25^\circ C$ | | - | 70 | - | |
| | $I_F=30A, V_R=400V,$ $di_F/dt=200A/\mu s, T_j=125^\circ C$ | | - | 120 | - | |
| Reverse recovery current | $I_F=30A, V_R=400V,$ $di_F/dt=200A/\mu s, T_j=25^\circ C$ | I_{RM} | - | 10 | - | A |
| | $I_F=30A, V_R=400V,$ $di_F/dt=200A/\mu s, T_j=125^\circ C$ | | - | 18 | - | |
| Reverse charge | $I_F=30A, V_R=400V,$ $di_F/dt=200A/\mu s, T_j=25^\circ C$ | Q_r | - | 360 | - | nC |
| | $I_F=30A, V_R=400V,$ $di_F/dt=200A/\mu s, T_j=125^\circ C$ | | - | 1100 | - | |

THERMAL RESISTANCES

| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|---------------|--|------|------|------|------|
| $R_{th(j-c)}$ | Thermal resistance from junction to case | - | 1.05 | - | °C/W |
| $R_{th(j-a)}$ | Thermal resistance from junction to ambient free air | - | 45 | - | |

MARKING



| | |
|----|----------------------------------|
| D | FRD |
| 30 | $I_{F(AV)}=30A$ |
| U | EPI Ultrafast Recovery Rectifier |
| 60 | VRRM:600V |
| J | Package:TO-247J |
| D | Double Chip |

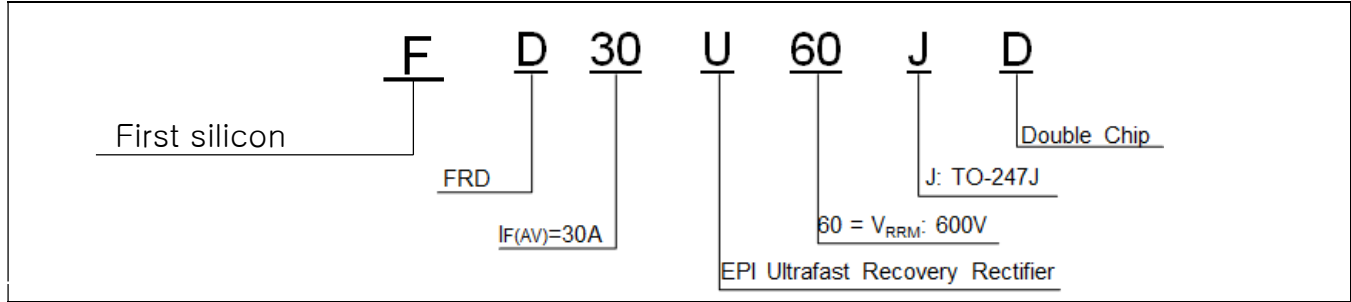
$\underline{x}H1$: Month, 1/2/3~9/A/B/C

$3\underline{x}1$:

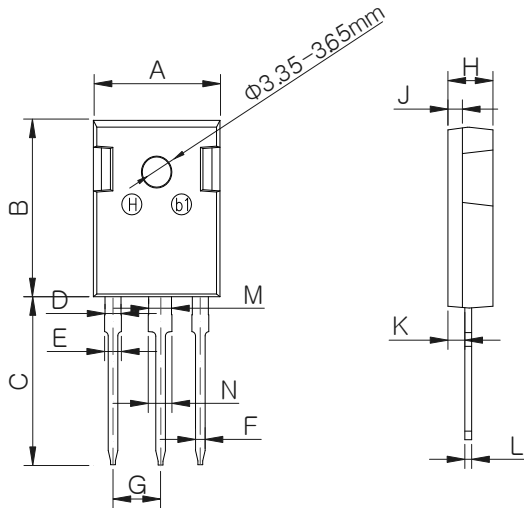
| | | | | | | |
|------|------|------|------|------|------|------|
| 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
| H | I | J | K | L | M | N |
| 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | ... |
| O | P | Q | R | S | T | ... |

$3H\underline{x}$: Batch number

ORDERING INFORMATION



PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | | | |
|------|-------------|-------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 15.50 | 15.80 | 16.10 | 0.610 | 0.622 | 0.634 |
| B | 20.80 | 21.00 | 21.20 | 0.819 | 0.827 | 0.835 |
| C | 19.70 | 20.00 | 20.30 | 0.776 | 0.787 | 0.799 |
| D | 1.80 | 2.00 | 2.20 | 0.071 | 0.079 | 0.087 |
| E | 1.90 | 2.10 | 2.30 | 0.075 | 0.083 | 0.091 |
| F | 1.00 | 1.20 | 1.40 | 0.039 | 0.047 | 0.055 |
| G | 5.25 | | 5.65 | 0.207 | | 0.222 |
| H | 4.80 | 5.00 | 5.20 | 0.189 | 0.197 | 0.205 |
| J | 1.90 | 2.00 | 2.10 | 0.075 | 0.079 | 0.083 |
| K | 2.20 | 2.35 | 2.50 | 0.087 | 0.093 | 0.098 |
| L | 0.41 | 0.60 | 0.79 | 0.016 | 0.024 | 0.031 |
| M | 2.80 | 3.00 | 3.20 | 0.110 | 0.118 | 0.126 |
| N | 2.90 | 3.10 | 3.30 | 0.114 | 0.122 | 0.130 |

PACKAGE INFORMATION-TO-247J

| OUTLINE | UNIT WEIGHT (g/PCS) TYP | TUBE (PCS) | PER CARTON (PCS) |
|---------|-------------------------|------------|------------------|
| TUBE | 6 | 30 | 2,250 |



FD30U60JD

CHARACTERISTICS CURVE

FIG.1 Typical forward characteristics

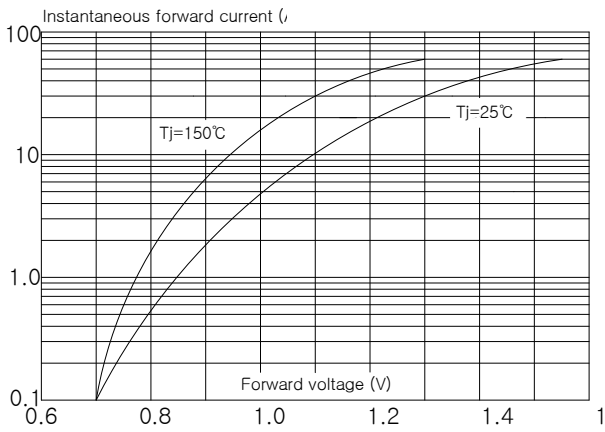


FIG.2 Typical reverse characteristics

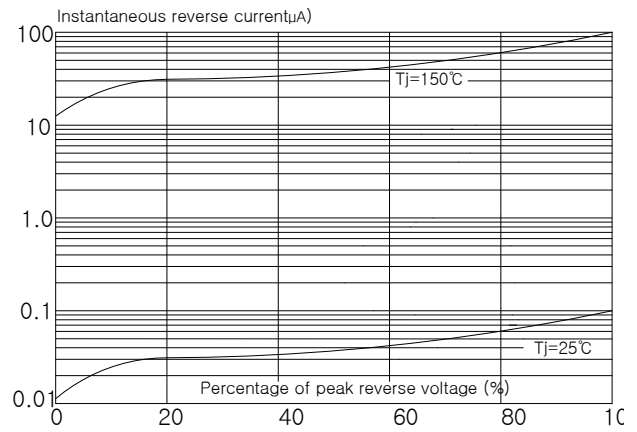


FIG.3 Maximum non-repetitive peak forward surge current(10ms single half sine-wave)

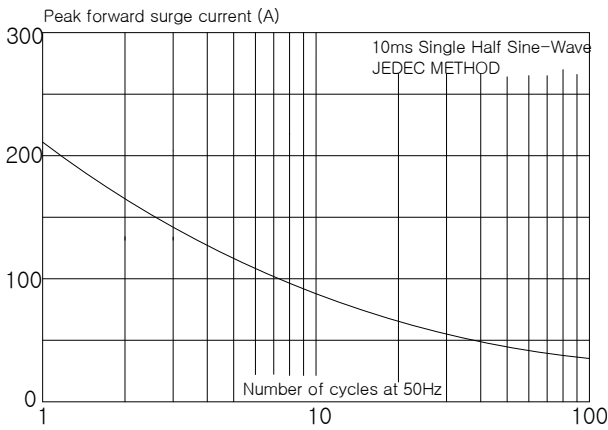


FIG.4: Forward current derating curve

