# EREC3006TC

## Hyperfast rectifier

Photo is representative

### Applications

- Switched mode power supplies (SMPS)
- Inverters
- Freewheeling diodes
- DC/DC converters
- Other power switching applications

### Product features

- Plastic package UL 94V-0
- Low reverse leakage current
- Hyperfast recovery time and soft recovery characteristics
- Low recovery loss

### Environmental compliance and general specifications

RoHS

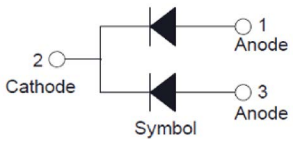
HALOGEN HF FREE

### Mechanical data

- Case: TO-247J molded plastic over passivated junction
- Terminals: Tin plated
- Weight: 6.0 gram typical

### Package diagram/size and schematic

TO-247J-3L




Symbol

### Ordering part number

| E | R | E | C | 30 | 06 | TC |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | |
|---|---|
| 1 | E=Eaton |
| 2 | R=Rectifier |
| 3 | E=Epitaxial process |
| 4 | C=Hyperfast |
| 5 | 30=$I_F$(AV): 30 A |
| 6 | 06=$V_{RRM}$: 600 V |
| 7 | TC=Package: TO-247J-3L common cathode |

Powering Business Worldwide

## Absolute maximum ratings

(Rating at +25 °C ambient temperature unless otherwise specified)

| Parameter | Symbol | Value | 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 $T_c$ = 140 °C | $I_{F(AV)}$ | 30 | A |
| Peak forward surge current: 10 ms single half sinewave superimposed on rated load | $I_{FSM}$ | 150 | A |
| Operating junction and storage temperature range | $T_j$, $T_{stg}$ | -55 to +150 | °C |

## Electrical characteristics

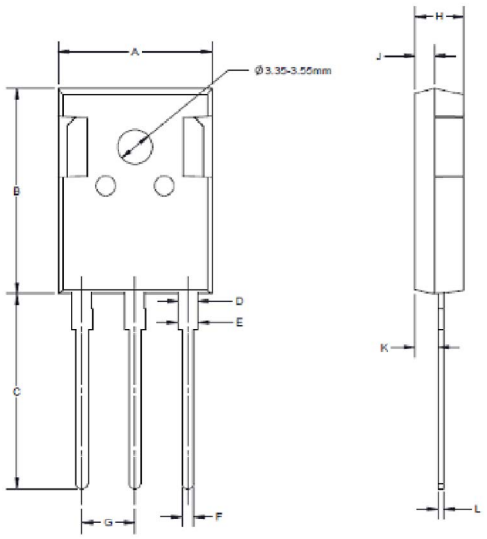
(Rating at +25 °C ambient temperature unless otherwise specified)

| Parameter | Test condition | Symbol | Minimum | Typical | Maximum | Unit |
|---|---|---|---|---|---|---|
| Forward voltage @IF=15 A | Tj=25 °C | $V_F$ | - | 2.7 | 3.2 | V |
| | Tj=150 °C | | | 1.4 | 2 | |
| Reverse current at rated DC blocking voltage | Tj=25 °C | $I_R$ | - | - | 5 | µA |
| | Tj=150 °C | | - | - | 300 | |
| Reverse recovery time | IF=1 A, VR=30 V, di/dt=200 A/µs, Tj=25 °C | $t_{rr}$ | - | 13 | 18 | ns |
| | IF=15 A, VR=200 V, di/dt=200 A/µs, Tj=25 °C | | - | 28 | - | |
| | IF=15 A, VR=200 V, di/dt=200 A/µs, Tj=125 °C | | - | 39 | - | |
| Peak reverse recovery current | IF=15 A, VR=200 V, di/dt=200 A/µs, Tj=25 °C | $I_{RM}$ | - | 2.1 | - | A |
| | IF=15 A, VR=200 V, di/dt=200 A/µs,Tj=125 °C | | - | 5.8 | - | |
| Reverse recovery charge | IF=15 A, VR=200 V, di/dt=200 A/µs, Tj=25 °C | $Q_{rr}$ | - | 30 | - | nC |
| | IF=15 A, VR=200 V, di/dt=200 A/µs, Tj=125 °C | | - | 115 | - | |

## Thermal resistances

| Symbol | Parameter | Minimum | Typical | Maximum | Unit |
|---|---|---|---|---|---|
| $R_{th(c-h)}$ | Thermal resistance from case to heatsink | - | 0.25 | - | °C /W |
| $R_{th(j-mb)}$ | Thermal resistance from junction to mounting base | - | - | 1.6 | °C /W |

## Mechanical drawing- mm




| Dimension | Minimum | Typical | Maximum |
|---|---|---|---|
| A | 15.50 | 15.80 | 16.10 |
| B | 20.80 | 21 | 21.20 |
| C | 19.70 | 20 | 20.30 |
| D | 1.80 | 2 | 2.20 |
| E | 1.90 | 2.10 | 2.30 |
| F | 1 | 1.20 | 1.40 |
| G | - | 5.44 | - |
| H | 4.80 | 5 | 5.20 |
| J | 1.90 | 2 | 2.10 |
| K | 2.20 | 2.35 | 2.50 |
| L | 0.41 | 0.60 | 0.79 |

## Marking

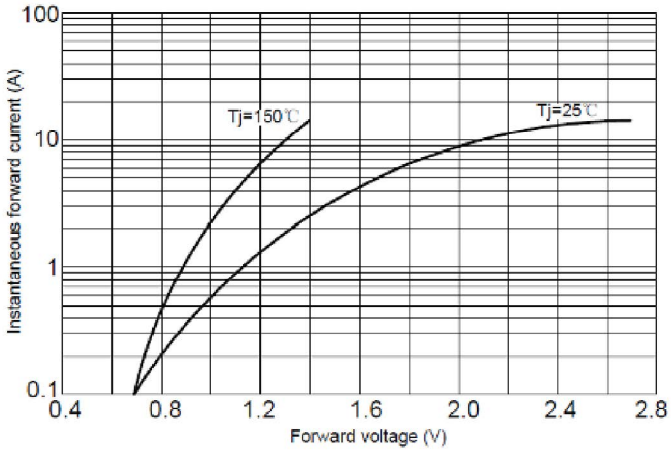

| Product information | |
|---|---|
| C | Hyperfast |
| 30 | $I_{F(AV)}$: 30 A |
| 06 | $V_{RRM}$: 600 V |
| TC | Package: TO-247J-3L common cathode |
| F35 | Date code |

### Packaging information

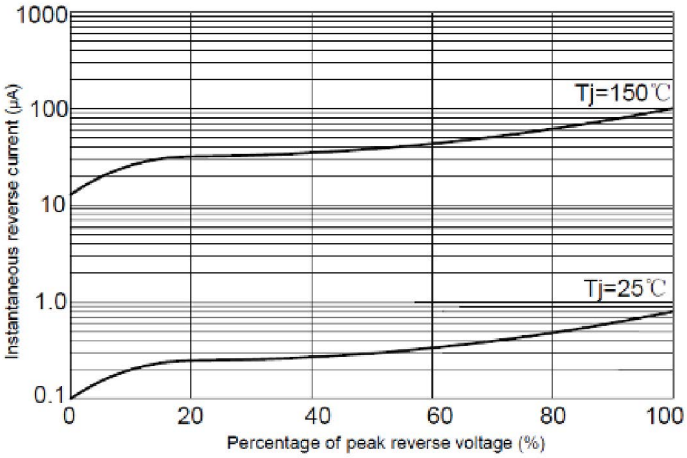
| Outline | Unit weight (g/pcs) typical | Tube (pcs) | Per carton (pcs) |
|---|---|---|---|
| TUBE | 6.0 | 30 | 1800 |

## Typical characteristics

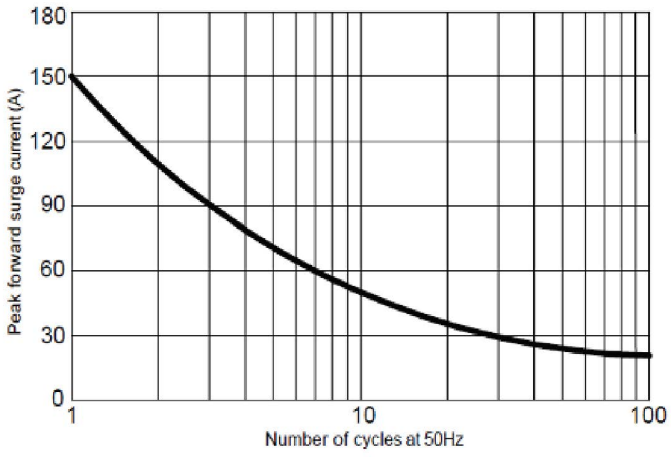
### Typical forward characteristics



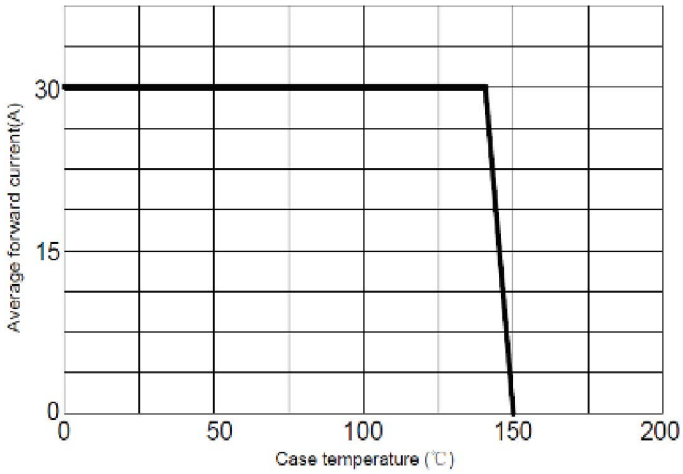

### Typical reverse characteristics



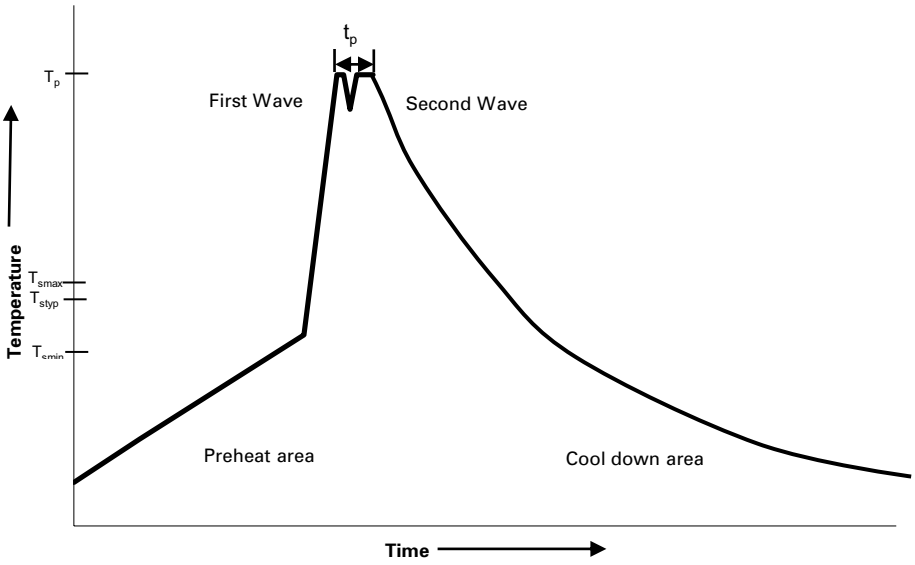

### Maximum non-repetitive peak forward surge current (10 ms single half sine-wave) (+25 °C)




### Forward current derating curve



## Wave solder profile




## Reference EN 61760-1:2006

| Profile feature | | Standard SnPb solder | Lead (Pb) free solder |
|---|---|---|---|
| Preheat | • Temperature min. ($T_{smin}$) | 100 °C | 100 °C |
| | • Temperature typ. ($T_{styp}$) | 120 °C | 120 °C |
| | • Temperature max. ($T_{smax}$) | 130 °C | 130 °C |
| | • Time ($T_{smin}$ to $T_{smax}$) ($t_s$) | 70 seconds | 70 seconds |
| $\Delta$ preheat to max Temperature | | 150 °C max. | 150 °C max. |
| Peak temperature ($T_P$)* | | 235 °C – 260 °C | 250 °C – 260 °C |
| Time at peak temperature ($t_p$) | | 10 seconds max<br>5 seconds max each wave | 10 seconds max<br>5 seconds max each wave |
| Ramp-down rate | | ~ 2 K/s min<br>~3.5 K/s typ<br>~5 K/s max | ~ 2 K/s min<br>~3.5 K/s typ<br>~5 K/s max |
| Time 25 °C to 25 °C | | 4 minutes | 4 minutes |

## Manual solder

Use a 20 watt soldering iron with tip diameter of 1.0 mm maximum. +350 °C, 4-5 seconds maximum, generally manual, hand soldering is not recommended



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