

EREE3006TC

Superfast rectifier data sheet



Photo is representative

Product features

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

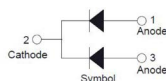
Mechanical data

- Case: TO-247J-3L molded plastic
- Terminals: Tin plated
- Weight: 6.0 grams typical

Package diagram/size and schematic



TO-247J-3L



Applications

- High-frequency rectifier switched-mode power supplies
- Inverters
- Freewheeling diodes
- DC/DC converters
- Other power switching applications

Environmental data



Part numbering system

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

1 E = Eaton

2 R = Rectifier

3 E = Epitaxial process

4 E = Superfast

5 30 = $I_{F(AV)}$: 30 A

6 06 = V_{RRM} : 600 V

7 TC = Package: TO-247J 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 $T_{mb} \leq 127\text{ °C}$	$I_{F(AV)}$	30	A
Peak forward surge current: 10 ms single half sinewave superimposed on rated load, per diode	I_{FSM}	155	A
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +150	°C

Electrical characteristics

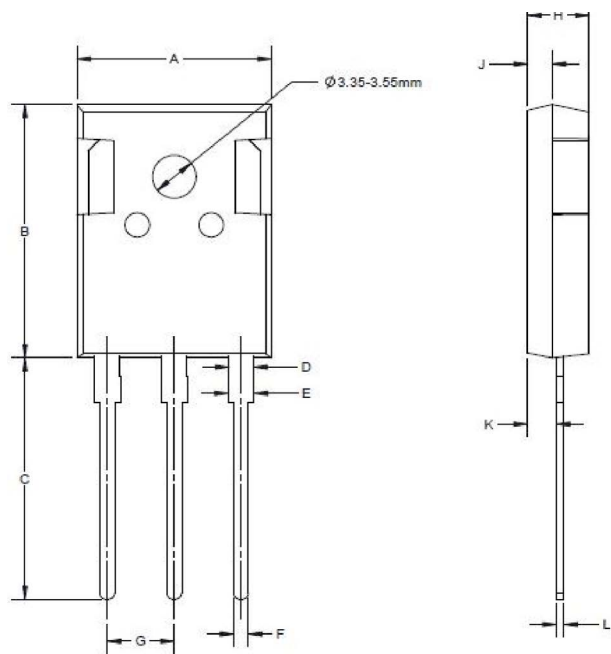
(Rating at +25 °C ambient temperature unless otherwise specified)

Parameter	Test condition	Symbol	Minimum	Typical	Maximum	Unit
Forward voltage @ $I_F = 15\text{ A}$	$T_j = 25\text{ °C}$	V_F	-	1.4	1.7	V
	$T_j = 150\text{ °C}$		-	1.1	1.4	
Reverse current at rated DC blocking voltage	$T_j = 25\text{ °C}$	I_R	-	-	5	μA
	$T_j = 150\text{ °C}$		-	-	300	
Reverse recovery time	$I_F = 1.0\text{ A}$, $V_R = 30\text{ V}$, $di/dt = 100\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$	t_{rr}	-	25	50	ns
	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$		-	34	-	
	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$		-	65	-	
Peak reverse recovery current	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$	I_{RM}	-	5.5	-	A
	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$		-	9.7	-	
Reverse recovered charge	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$	Q_{rr}	-	125	-	nC
	$I_F = 15\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$		-	318	-	

Thermal resistances

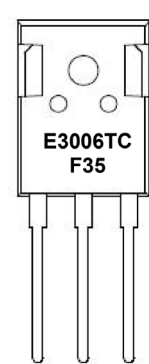
Symbol	Parameter	Minimum	Typical	Maximum	Unit
$R_{th(j-a)}$	Thermal resistance from junction to ambient	-	45	-	°C/W
$R_{th(j-mb)}$	Thermal resistance from junction to mounting base, per diode	-	1.2	2.0	°C/W
	Thermal resistance from junction to mounting base, both diodes	-	0.65	1.2	

Mechanical drawing - mm



Dimension	Minimum	Typical	Maximum
A	15.5	15.8	16.1
B	20.8	21.0	21.2
C	19.7	20.0	20.3
D	1.80	2.00	2.20
E	1.90	2.10	2.30
F	1.00	1.20	1.40
G	-	5.44	-
H	4.80	5.00	5.20
J	1.90	2.00	2.10
K	2.20	2.35	2.50
L	0.41	0.60	0.79

Marking



Product information	
E	Superfast
30	$I_{F(AV)}$: 30 A
06	V_{RRM} : 600 V
TC	Package: TO-247J common cathode

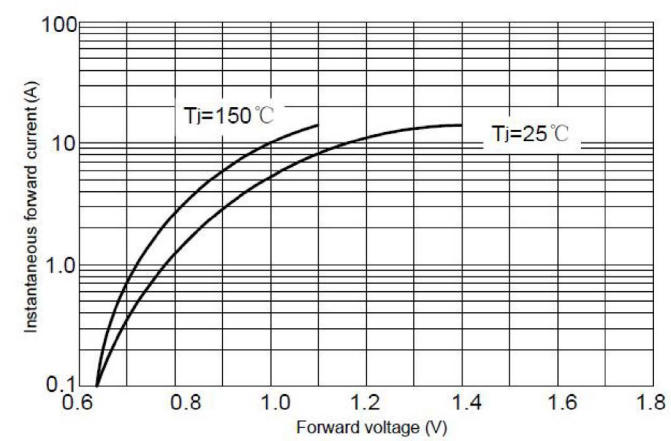
Date code	
F35	

Packaging information

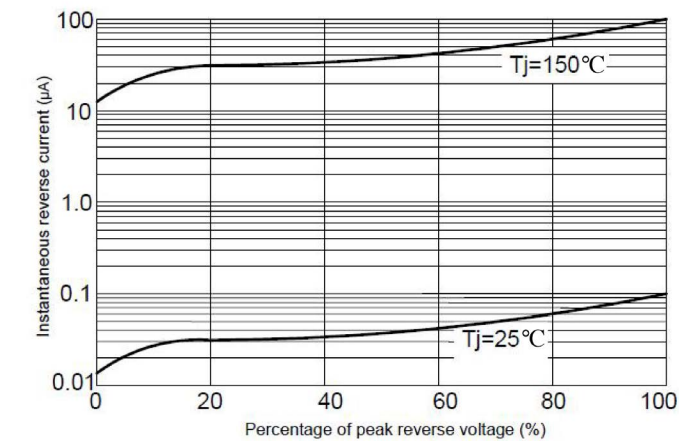
Outline	Unit weight (g/pcs) typical	Tube (pcs)	Per carton (pcs)
Tube	6.0	30	1,800

Typical characteristics

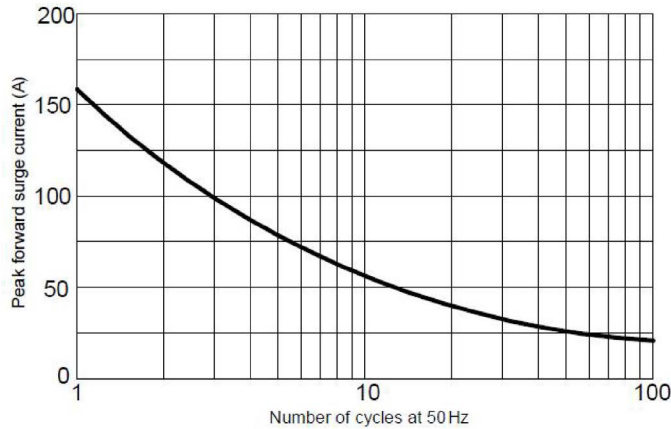
Typical forward characteristics



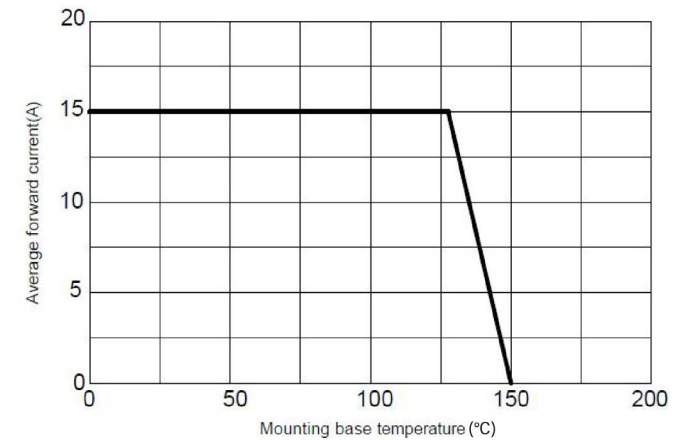
Typical reverse characteristics



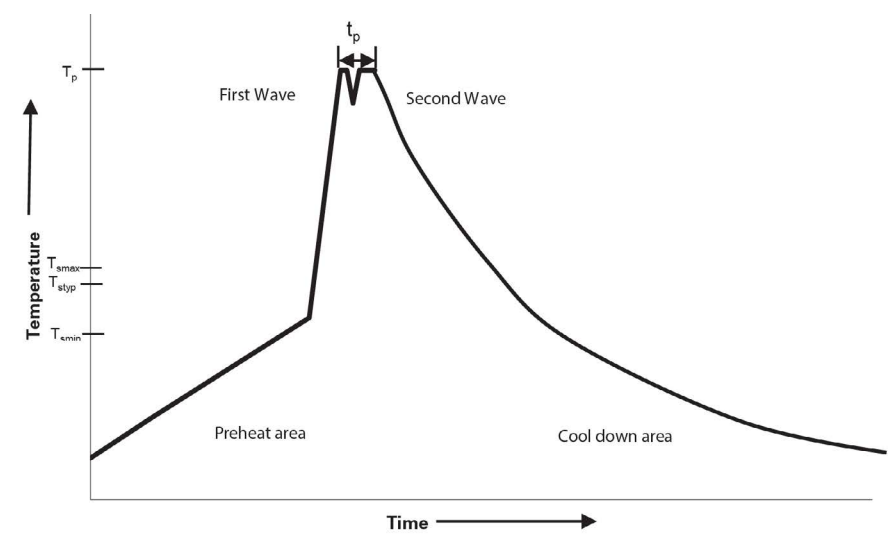
Maximum non-repetitive peak forward surge current
(10 ms single half sine-wave)



Forward current derating curve



Soldering information



Reference EN 61760-1:2006

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat • Temperature minimum (T_{smin}) • Temperature typical (T_{styp}) • Temperature maximum (T_{smax}) • Time (T_{smin} to T_{smax}) (t_s)	100 °C 120 °C 130 °C 70 seconds	100 °C 120 °C 130 °C 70 seconds
Δ preheat to maximum temperature	150 °C maximum	150 °C maximum
Peak temperature (T_p)	235 °C to 260 °C	250 °C to 260 °C
Time at peak temperature (t_p)	10 seconds maximum 5 seconds maximum each wave	10 seconds maximum 5 seconds maximum each wave
Ramp-down rate	~ 2 K/s minimum ~3.5 K/s typical ~5 K/s maximum	~ 2 K/s minimum ~3.5 K/s typical ~5 K/s maximum
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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