

EREC3006TC

Hyperfast rectifier



Photo is representative

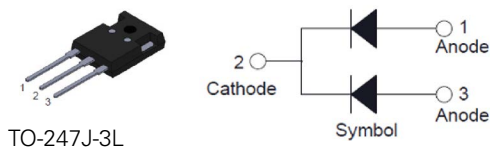
Product features

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

Mechanical data

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

Package diagram/size and schematic



Applications

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

Environmental compliance and general specifications



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					

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 $T_c = 140\text{ °C}$	$I_{F(AV)}$	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

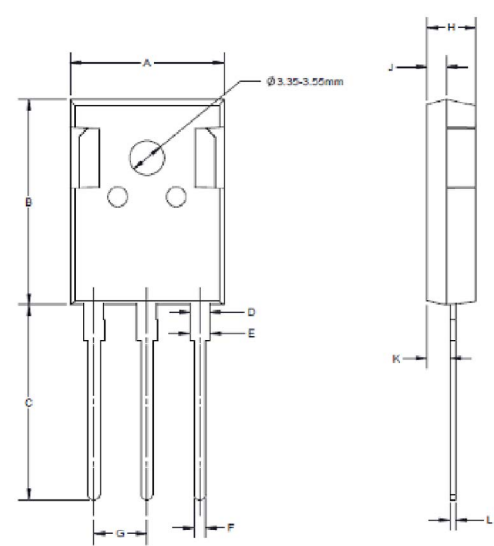
(Rating at +25 °C ambient temperature unless otherwise specified)

Parameter	Test condition	Symbol	Minimum	Typical	Maximum	Unit
Forward voltage @IF=15 A	$T_j=25\text{ °C}$	V_F	-	2.7	3.2	V
	$T_j=150\text{ °C}$		-	1.4	2	
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	IF=1 A, VR=30 V, di/dt=200 A/μs, $T_j=25\text{ °C}$	t_{rr}	-	13	18	ns
	IF=15 A, VR=200 V, di/dt=200 A/μs, $T_j=25\text{ °C}$		-	28	-	
	IF=15 A, VR=200 V, di/dt=200 A/μs, $T_j=125\text{ °C}$		-	39	-	
Peak reverse recovery current	IF=15 A, VR=200 V, di/dt=200 A/μs, $T_j=25\text{ °C}$	I_{RM}	-	2.1	-	A
	IF=15 A, VR=200 V, di/dt=200 A/μs, $T_j=125\text{ °C}$		-	5.8	-	
Reverse recovery charge	IF=15 A, VR=200 V, di/dt=200 A/μs, $T_j=25\text{ °C}$	Q_{rr}	-	30	-	nC
	IF=15 A, VR=200 V, di/dt=200 A/μs, $T_j=125\text{ °C}$		-	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



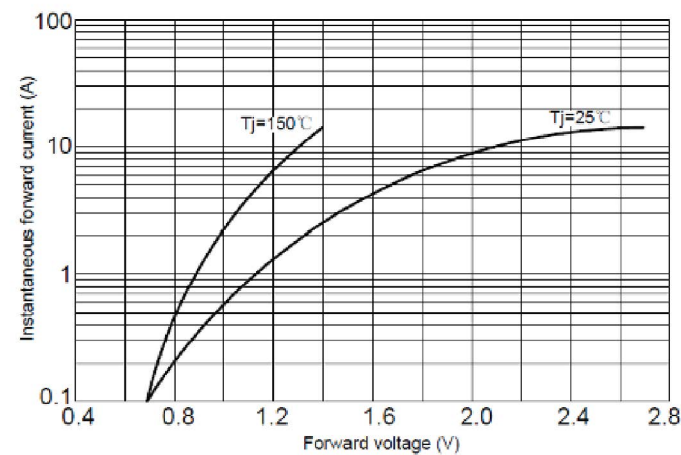
Product information	
C	Hyperfast
30	I_{FAV} : 30 A
06	V_{RRM} : 600 V
TC	Package: TO-247J-3L common cathode
F35	Date code

Packaging information

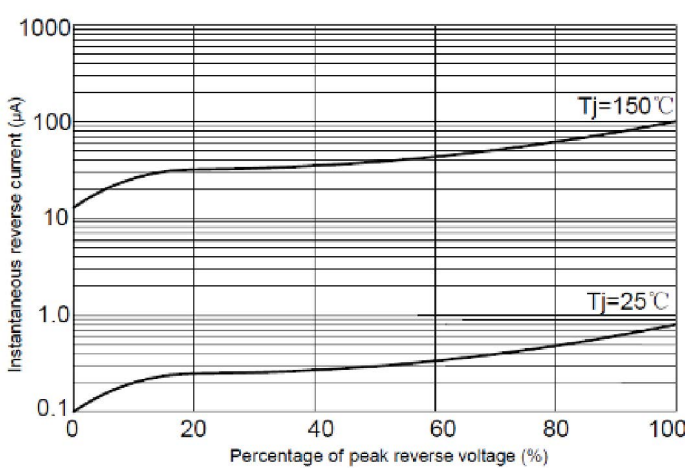
Outline	Unit weight (g/pcs) typical	Tube (pcs)	Per carton (pcs)
TUBE	6.0	30	1800

Typical characteristics

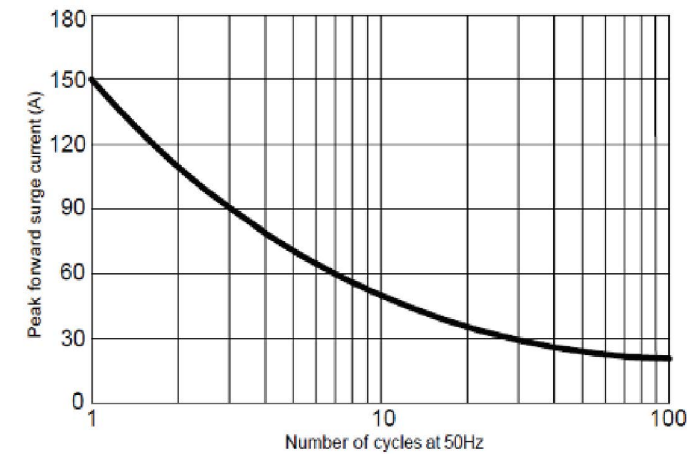
Typical forward characteristics



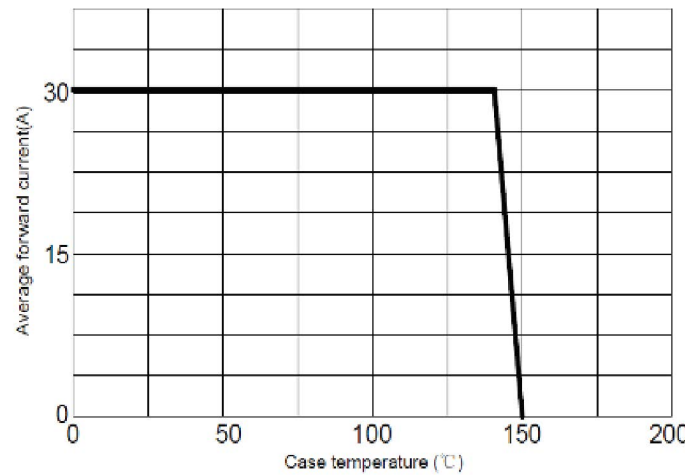
Typical reverse characteristics



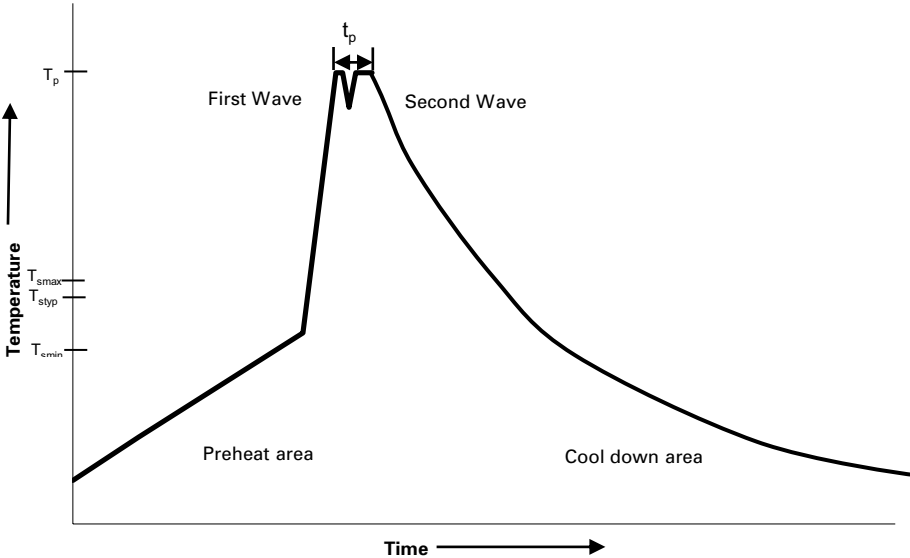
Maximum non-repetitive peak forward surge current
(10 ms single half sine-wave) (+25 °C)



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
Δ 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 5 seconds max each wave	10 seconds max 5 seconds max each wave
Ramp-down rate	~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~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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