

EREU6006TC

Ultrafast rectifier data sheet



Photo is representative

Product features

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

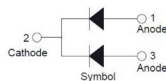
Mechanical data

- 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	U	60	06	TC
1	2	3	4	5	6	7
1	E = Eaton					
2	R = Rectifier					
3	E = Epitaxial process					
4	U = Ultrafast					
5	60 = $I_{F(AV)}$: 60 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 $T_c = 125\text{ °C}$	$I_{F(AV)}$	60	A
Peak forward surge current: 10 ms single half sinewave superimposed on rated load, per diode	I_{FSM}	210	A
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +150	°C

Electrical characteristics

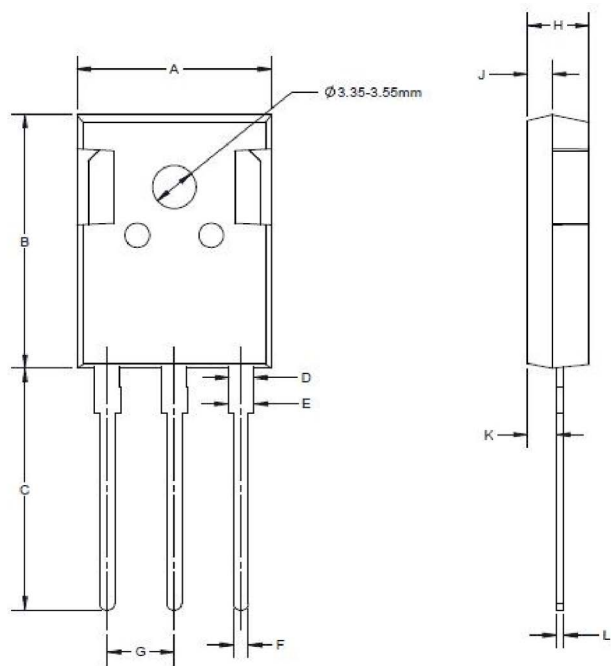
(Rating at +25 °C ambient temperature unless otherwise specified)

Parameter	Test condition	Symbol	Minimum	Typical	Maximum	Unit
Forward voltage @ $I_F = 30\text{ A}$	$T_j = 25\text{ °C}$	V_F	-	-	1.55	V
	$T_j = 150\text{ °C}$		-	1.1	1.25	
Forward voltage @ $I_F = 30\text{ A}$	$T_j = 25\text{ °C}$	V_F	-	-	1.78	V
	$T_j = 150\text{ °C}$		-	1.3	1.55	
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	$I_F = 1\text{ A}$, $V_R = 30\text{ V}$, $di/dt = 50\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$	t_{rr}	-	48	75	ns
	$I_F = 30\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$		-	70	-	
	$I_F = 30\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$		-	120	-	
Peak reverse recovery current	$I_F = 30\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$	I_{RM}	-	10	-	A
	$I_F = 30\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$		-	18	-	
Reverse recovered charged	$I_F = 30\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$	Q_{rr}	-	360	-	nC
	$I_F = 30\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$		-	1100	-	

Thermal resistances

Symbol	Parameter	Minimum	Typical	Maximum	Unit
$R_{th(j-a)}$	Thermal resistance from junction to ambient	-	45	-	°C/W
$R_{th(j-c)}$	Thermal resistance from junction to case	-	0.5	-	

Mechanical drawing - mm



Dimension	Minimum	Typical	Maximum
A	15.50	15.80	16.10
B	20.80	21.00	21.20
C	19.70	20.00	20.30
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	
U	Ultrafast
60	$I_{F(AV)}$: 60 A
06	V_{RRM} : 600 V
TC	Package: TO-247J common cathode

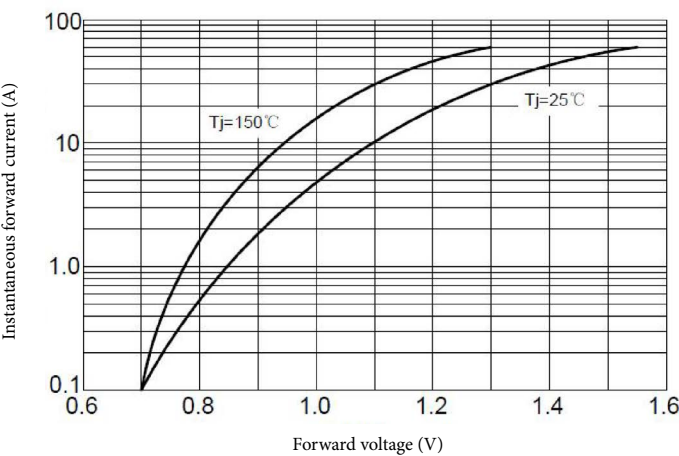
Date code	
F35	

Packaging information

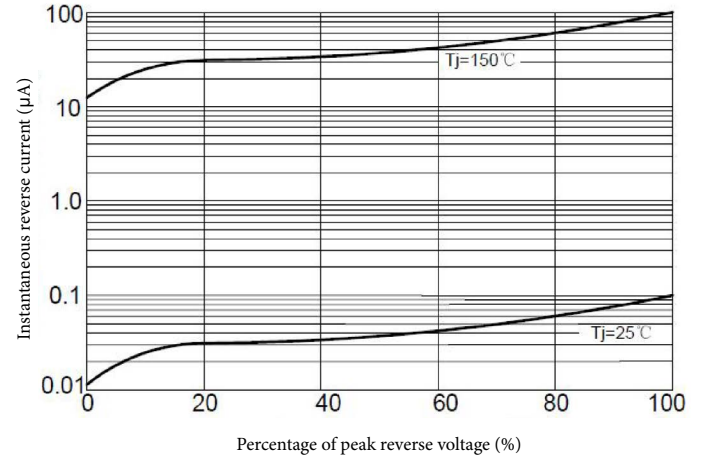
Outline	Unit weight (g/pcs) typical	Tube (pcs)	Per carton (pcs)
Tube	6.0	30	1,800

Typical characteristics

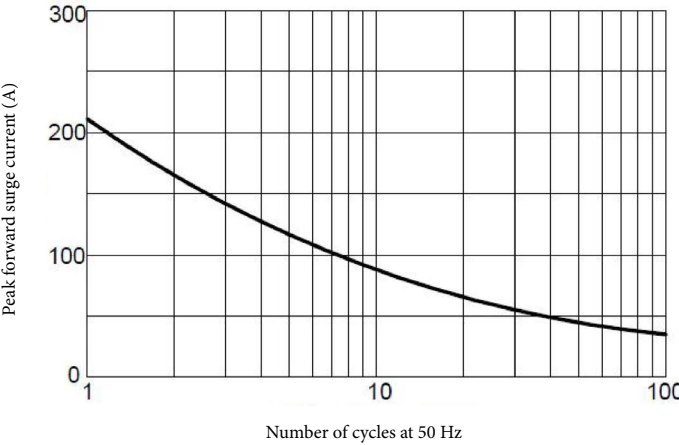
Typical forward characteristics



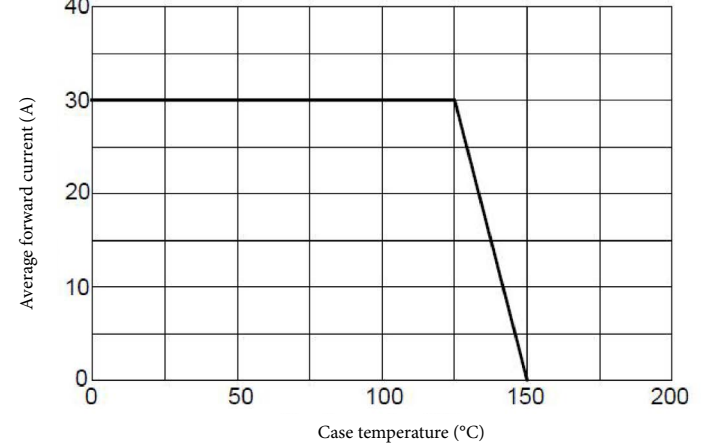
Typical reverse characteristics



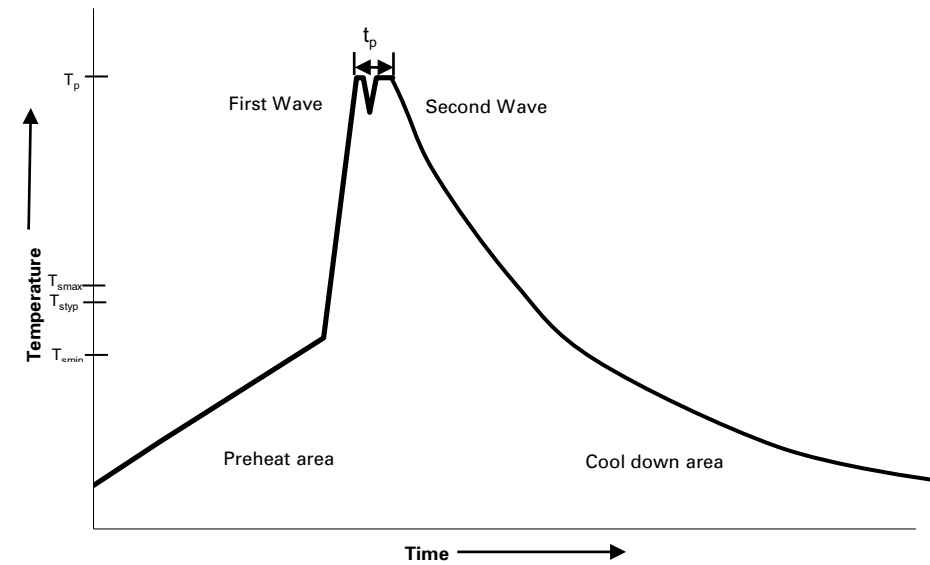
Maximum non-repetitive peak forward surge current
(10 ms single half sine-wave) (+25 °C)



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})	100 °C	100 °C
• Temperature typical (T_{styp})	120 °C	120 °C
• Temperature maximum (T_{smax})	130 °C	130 °C
• Time (T_{smin} to T_{smax}) (t_s)	70 seconds	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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