

EREU6006TL

Ultrafast rectifier data sheet



Photo is representative

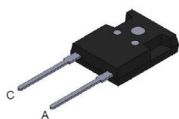
Product features

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

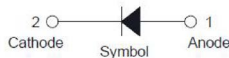
Mechanical data

- Case: TO-247J-2L molded plastic
- Terminals: Tin plated
- Weight: 5.75 grams typical

Package diagram/size and schematic



TO-247J-2L



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	TL
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	TL = Package: TO-247J-2L					

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 $T_{mb} \leq 132\text{ °C}$	$I_{F(AV)}$	60	A
Peak forward surge current: 10 ms single half sinewave superimposed on rated load	I_{FSM}	600	A
Peak forward surge current: 8.3 ms single half sinewave superimposed on rated load	I_{FSM}	660	A
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +150	°C

Electrical characteristics

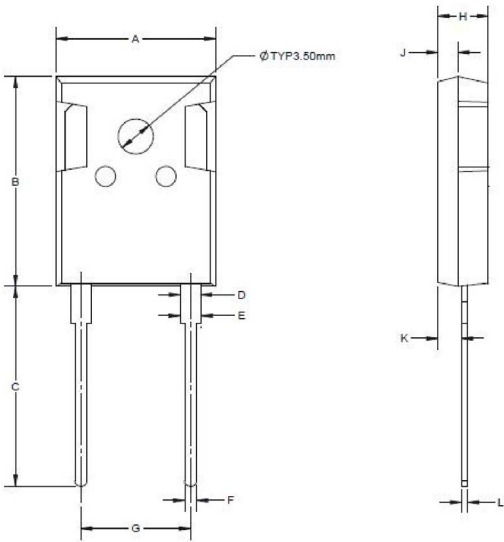
(Rating at +25 °C ambient temperature unless otherwise specified)

Parameter	Test condition	Symbol	Minimum	Typical	Maximum	Unit
Forward voltage @ $I_F = 60\text{ A}$	$T_j = 25\text{ °C}$	V_F	-	1.35	2.00	V
	$T_j = 150\text{ °C}$			1.10	1.60	
Reverse current at rated DC blocking voltage	$T_j = 25\text{ °C}$	I_R	-	-	5	μA
	$T_j = 125\text{ °C}$		-	-	500	
Reverse recovery time	$I_F = 1\text{ A}$, $V_R = 30\text{ V}$, $di/dt = 100\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$	t_{rr}	-	42	-	ns
	$I_F = 50\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$		-	75	-	
	$I_F = 50\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$		-	120	-	
	$I_F = 50\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$		-	10	-	
Peak reverse recovery current	$I_F = 50\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$	I_{RM}	-	18	-	A
	$I_F = 50\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$		-	400	-	
Reverse recovered charged	$I_F = 50\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$	Q_{rr}	-	1100	-	nC
	$I_F = 50\text{ A}$, $V_R = 400\text{ V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_j = 25\text{ °C}$		-	400	-	

Thermal resistances

Symbol	Parameter	Minimum	Typical	Maximum	Unit
$R_{th(j-a)}$	Thermal resistance from junction to ambient	-	40	-	°C/W
$R_{th(j-mb)}$	Thermal resistance from junction to mounting base	-	-	0.43	°C/W

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	-	10.88	-
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



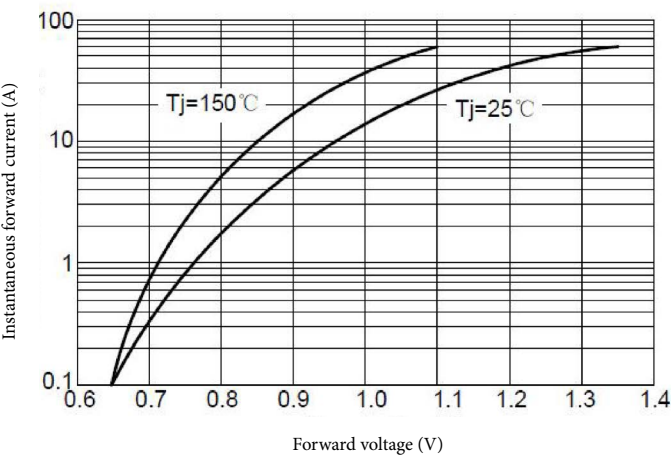
Product information	
U	Ultrafast
60	$I_{F(AV)}$: 60 A
06	V_{RRM} : 600 V
TL	Package: TO-247J-2L
Date code	
F35	

Packaging information

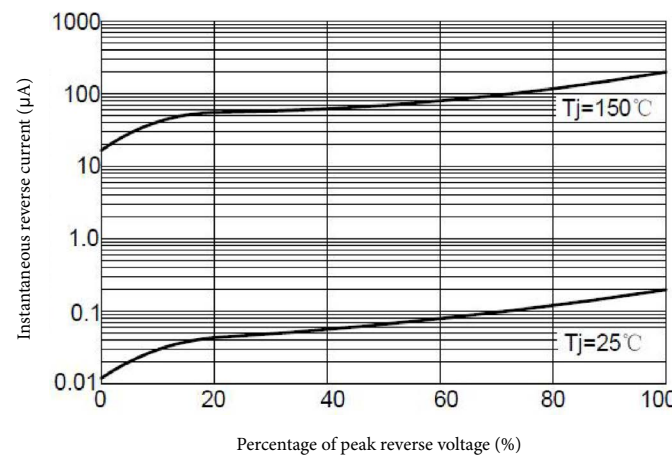
Outline	Unit weight (g/pcs) typical	Tube (pcs)	Per carton (pcs)
Tube	5.75	30	1,800

Typical characteristics

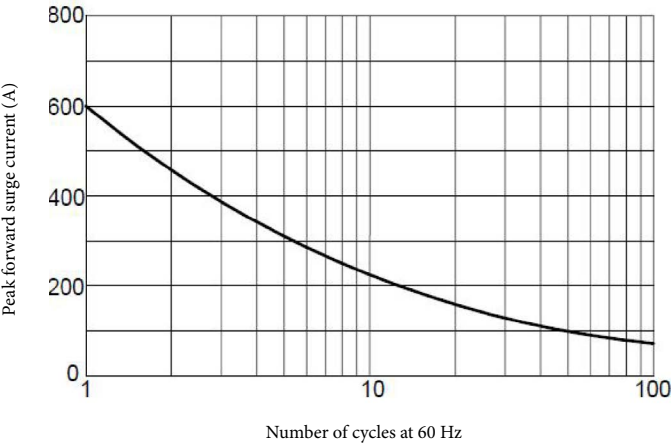
Typical forward characteristics



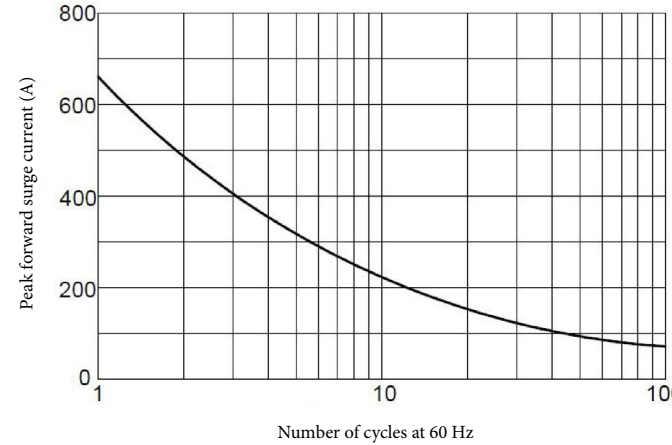
Typical reverse characteristics



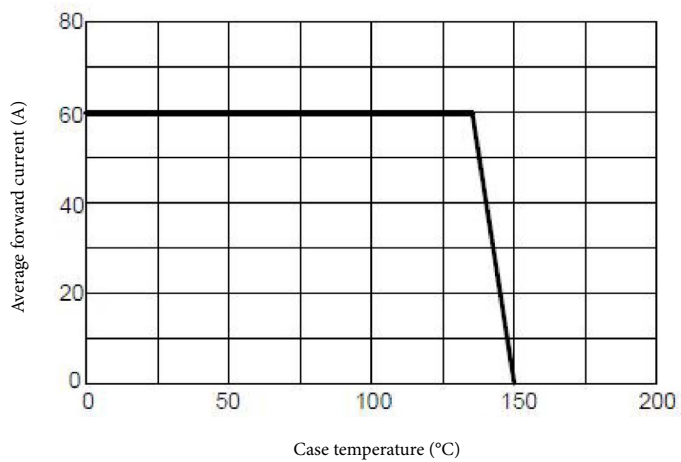
Maximum non-repetitive peak forward surge current
(10 ms single half sine-wave) (+25 °C)



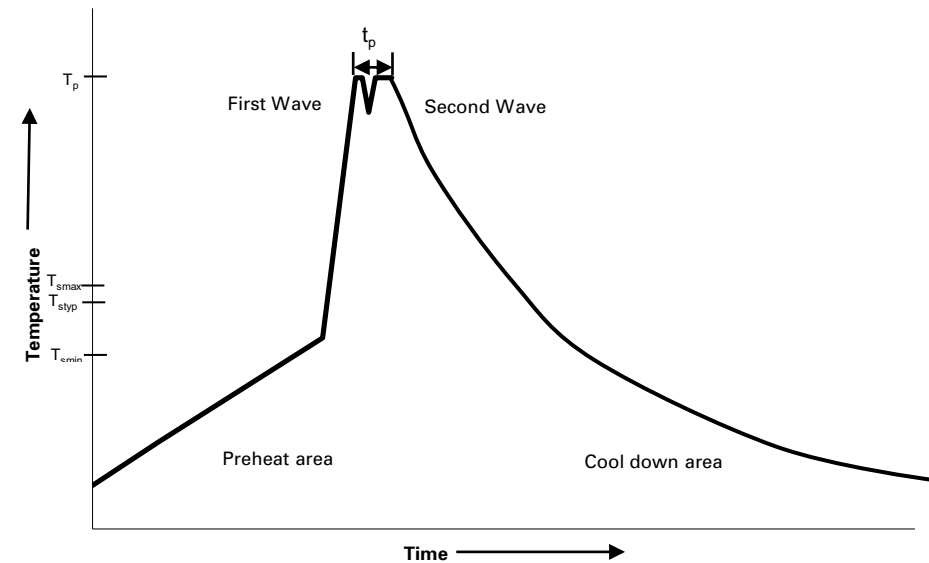
Maximum non-repetitive peak forward surge current
(8.3 ms single half sine-wave) (+25 °C)



Forward current derating curve



Soldering information



Reference EN 61760-1:2006

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat		
• Temperature 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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Printed in USA
Publication No. ELX1521 BU-ELX22417
April 2025

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