

EREE2006FPL

Superfast rectifier data sheet



Photo is representative

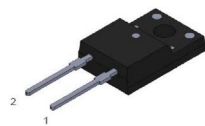
Product features

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

Mechanical data

- Case: TO-220FP-2L molded plastic over passivated junction
- Terminals: Tin plated
- Weight: 2.0 grams typical

Package diagram/size and schematic



TO-220FP-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	E	20	06	FPL
1	2	3	4	5	6	7

1 E = Eaton

2 R = Rectifier

3 E = Epitaxial process

4 E = Superfast

5 20 = $I_{F(AV)}$: 20 A

6 06 = V_{RRM} : 600 V

7 FPL = Package: TO-220FP-2L



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 $T_c = 100\text{ °C}$	$I_{F(AV)}$	20	A
Peak forward surge current: 8.3 ms single half sinewave superimposed on rated load	I_{FSM}	200	A
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +150	°C

Electrical characteristics

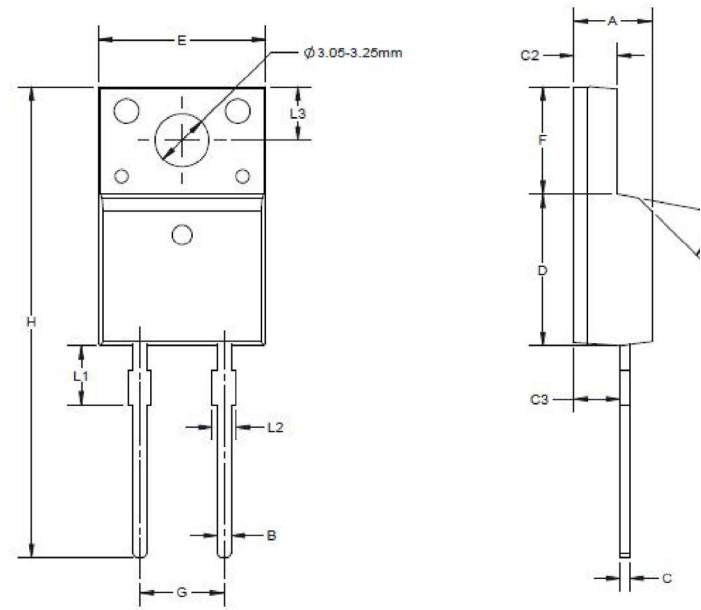
(Rating at +25 °C ambient temperature unless otherwise specified)

Parameter	Test condition	Symbol	Minimum	Typical	Maximum	Unit
Forward voltage @ $I_F = 20\text{ A}$	$T_j = 25\text{ °C}$	V_F	-	-	1.7	V
Reverse current at rated DC blocking voltage	$T_j = 25\text{ °C}$	I_R	-	-	5	μA
	$T_j = 125\text{ °C}$		-	-	300	
Reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$, $T_j = 25\text{ °C}$	t_{rr}	-	-	35	ns
RMS isolation voltage	50 Hz $\leq f \leq 60\text{ Hz}$; RH $\leq 65\%$; from all pins to external heatsink; sinusoidal waveform; clean and dust-free	$V_{isol}(RMS)$	-	-	2500	V
Isolation capacitance	from cathode to external heatsink	C_{isol}	-	10	-	pF

Thermal resistances

Symbol	Parameter	Minimum	Typical	Maximum	Unit
$R_{th(j-c)}$	Thermal resistance from junction to case	-	3.0	-	°C/W

Mechanical drawing - mm



Dimension	Minimum	Typical	Maximum
A	4.50	-	4.90
B	0.74	0.80	0.83
C	0.47	-	0.65
C2	2.45	-	2.75
C3	2.60	-	3.00
D	8.80	-	9.30
E	9.80	-	10.4
F	6.40	-	6.80
G	-	5.08	-
H	28.0	-	29.8
L1	-	3.36	-
L2	1.14	-	1.70
L3	-	3.30	-
V1	-	45°	-

Marking



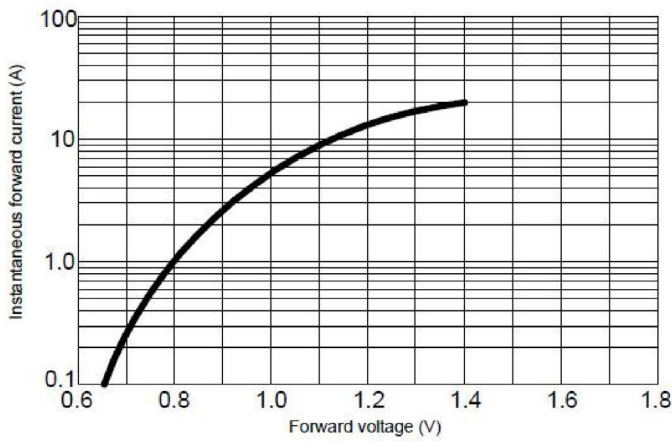
Product information	
E	Superfast
20	I_{FAV} : 20 A
06	V_{RRM} : 600 V
FPL	Package: TO-220FP-2L
Date code	
F35	

Packaging information

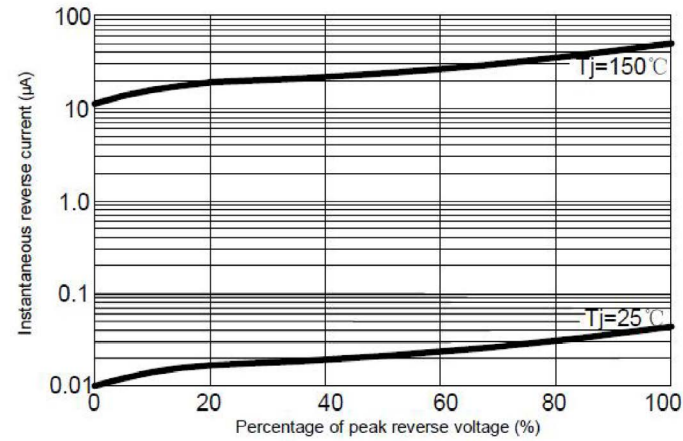
Outline	Unit weight (g/pcs) typical	Tube (pcs)	Per carton (pcs)
Tube	2.0	50	5,000

Typical characteristics

Typical forward characteristics



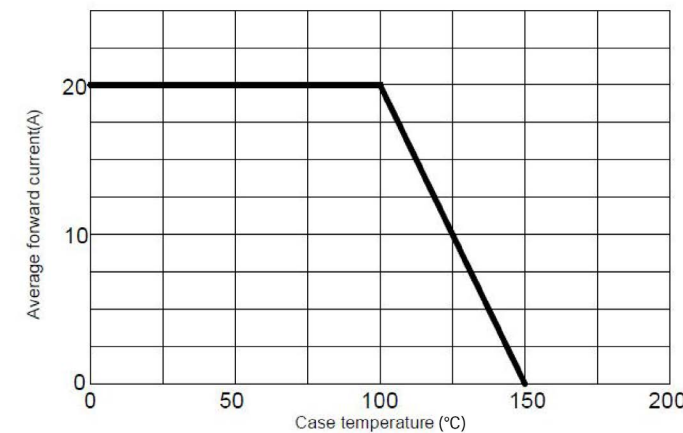
Typical reverse characteristics



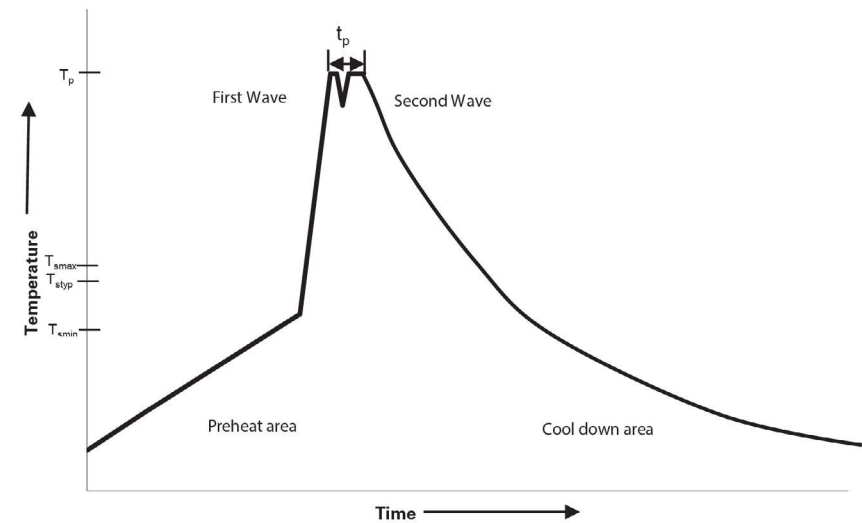
Maximum non-repetitive peak forward surge current
(8.3 ms single half sine-wave)



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})	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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