EREC0806E

Hyperfast soft recovery rectifier

Applications

- Switching mode power supplies
- Inverters
- Freewheeling diodes
- DC/DC converters
- Other power switching applications

Product features

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

Environmental compliance and general specifications

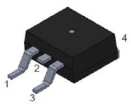
HALOGEN HF FREE

RoHS

Mechanical data

- Case: TO-263 molded plastic over passivated junction
- Terminals: Tin plated
- Weight: 1.55 grams typical

Package diagram/size and schematic



TO-263

1	No connection
2,4	Cathode
3	Anode

Ordering part number

E	R	E	C	08	06	E
1	2	3	4	5	6	7

1	E=Eaton
2	R=Rectifier
3	E=Epitaxial process
4	C=Hyperfast
5	08=I_F(AV): 8 A
6	06=V_{RRM}: 600 V
7	E=Package: TO-263

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 $T_{mb} \leq 130$ °C	$I_{F(AV)}$	8	A
Peak forward surge current: 10 ms single half sinewave superimposed on rated load	I_{FSM}	90	A
Peak forward surge current: 8.3 ms single half sinewave superimposed on rated load		100	
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +150	°C

Electrical characteristics

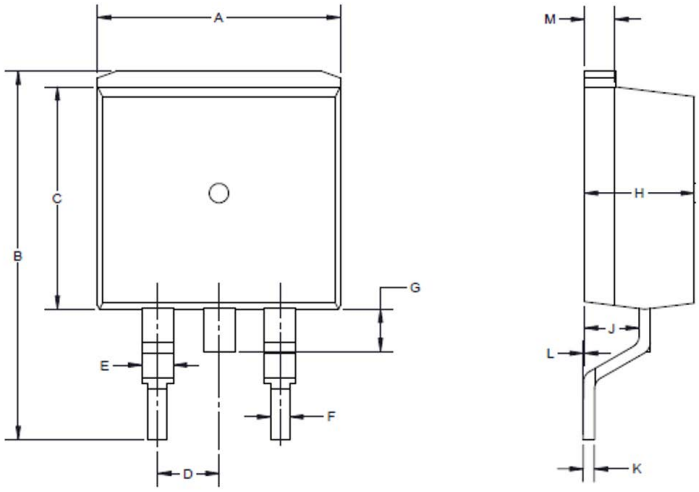
(Rating at +25 °C ambient temperature unless otherwise specified)

Parameter	Test condition	Symbol	Minimum	Typical	Maximum	Unit
Forward voltage @IF=8 A	Tj=25 °C	V_F	-	-	3.4	V
Reverse current at rated DC blocking voltage	Tj=25 °C	I_R	-	-	5	µA
	Tj=125 °C		-	-	200	
Reverse recovery time	IF=1 A, VR=30 V, di/dt=200 A/µs, Tj=25 °C	t_{rr}	-	12	18	ns
Peak reverse recovery current	IF=8 A, VR=200 V, di/dt=200 A/µs, Tj=25 °C	I_{RM}	-	-	2.2	A
	IF=8 A, VR=200 V, di/dt=200 A/µs,Tj=125 °C		-	-	6	
Reverse recovery charge	IF=8 A, VR=200 V, di/dt=200 A/µs, Tj=25 °C	Q_{rr}	-	17	-	nC
	IF=8 A, VR=200 V, di/dt=200 A/µs, Tj=125 °C		-	90	-	

Thermal resistances

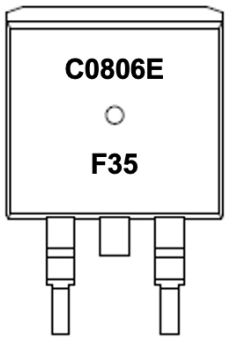
Symbol	Parameter	Minimum	Typical	Maximum	Unit
$R_{th(j-a)}$	Thermal resistance from junction to ambient	-	60	-	°C /W
$R_{th(j-mb)}$	Thermal resistance from junction to mounting base	-	-	2.5	°C /W

Mechanical drawing- mm



Dimension	Minimum	Typical	Maximum
A	9.9	-	10.2
B	14.7	-	15.8
C	8.8	-	9.6
D	-	2.54	-
E	1.2	-	1.4
F	0.75	-	0.85
G	-	-	1.75
H	4.4	-	4.7
J	2.3	-	2.7
K	0.38	-	0.55
L	0	0.1	0.25
M	1.17	-	1.37

Marking



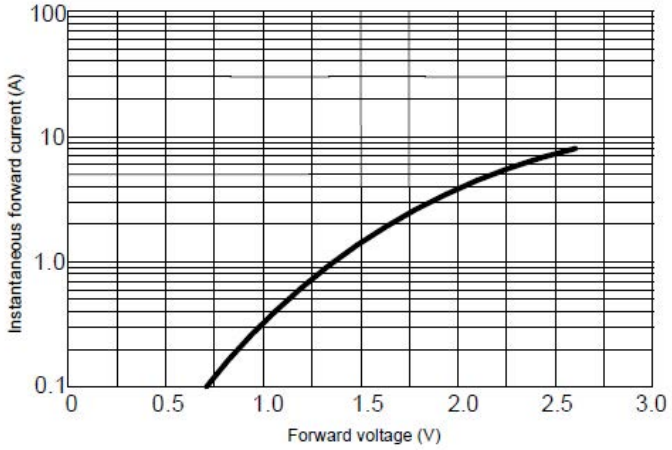
Product information	
C	Hyperfast
08	$I_{F(AV)}$: 8 A
06	V_{RRM}: 600 V
E	Package: TO-263
F35	Date code

Packaging information

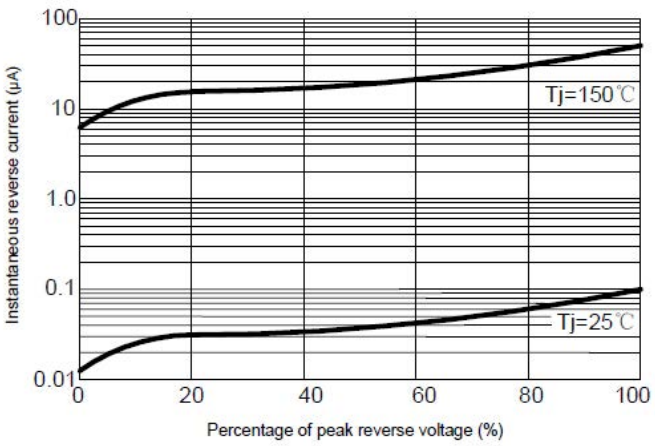
Outline	Unit weight (g/PCS) typical	Tube (pcs)	Per carton (pcs)
TUBE	1.55	50	5,000

Typical characteristics

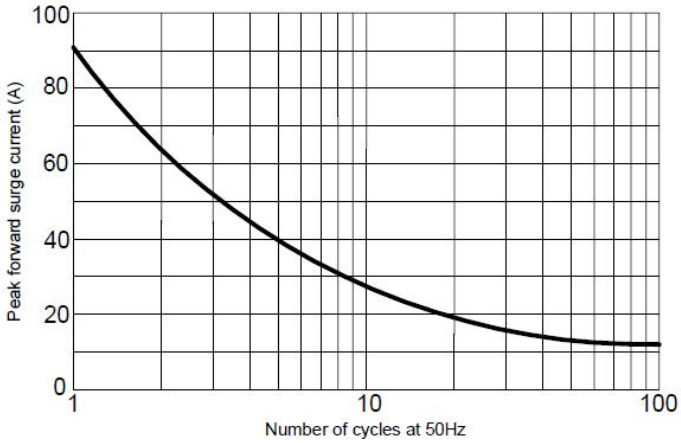
Typical forward characteristics (+25 °C)



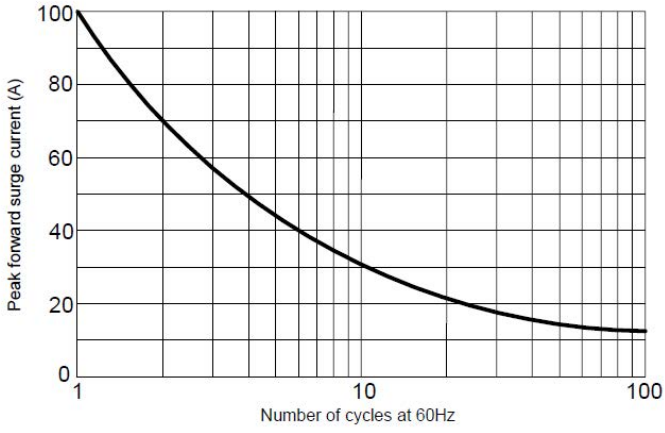
Typical reverse characteristics



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

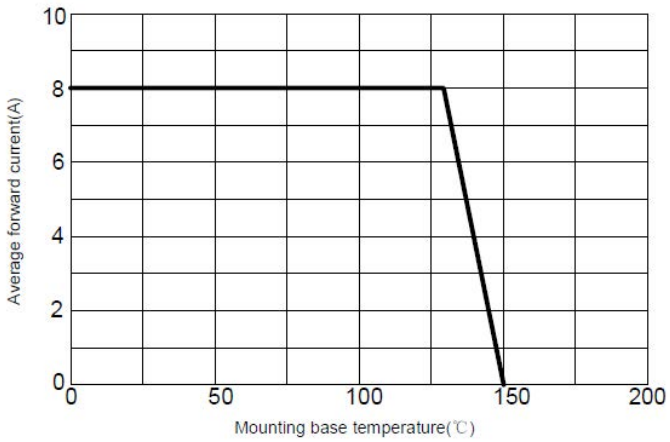


Maximum non-repetitive peak forward surge current (8.3 ms single half sine-wave) (+25 °C)



Typical characteristics

Forward current derating curve



Solder reflow profile

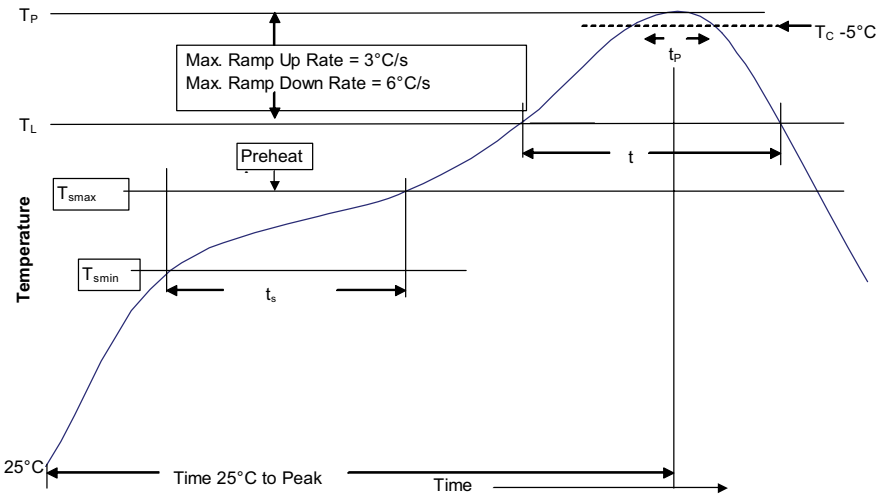


Table 1 - Standard SnPb solder (T_C)

Package thickness	Volume mm3 <350	Volume mm3 ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature		Standard SnPb solder	Lead (Pb) free solder
Preheat and soak	• Temperature min. (T_{smin})	100 °C	150 °C
	• Temperature max. (T_{smax})	150 °C	200 °C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds	60-120 seconds
Ramp up rate T_L to T_p		3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L		183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body temperature (T_P)*		Table 1	Table 2
Time (t_p)* within 5 °C of the specified classification temperature (T_C)		20 seconds*	30 seconds*
Ramp-down rate (T_p to T_L)		6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature		6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

Manual solder

Use a 20 W 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. ELX1296 BU-ELX22159
June 2023

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