

EREC0202SA

Hyperfast soft recovery rectifier



Applications

- Switching mode power supplies (SMPS)
- Inverters
- Freewheeling diodes
- DC/DC converters
- Other power switching application

Product features

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

Environmental data



Mechanical data

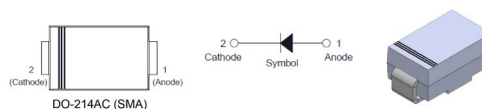
- Case: DO-214AC molded plastic
- Terminals: Tin plated
- Weight: 0.0673 grams typical

Part numbering system

E	R	E	C	02	02	SA
1	2	3	4	5	6	7

1	E=Eaton
2	R=Rectifier
3	E=Epitaxial process
4	C= Hyperfast
5	02= $I_{F(AV)}$: 2 A
6	02= V_{RRM} : 200 V
7	SA=Package: DO-214AC (SMA)

Package diagram/size and schematic



Powering Business Worldwide

Absolute maximum rating

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

Parameter	Symbol	Value	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	200	V
Maximum RMS voltage	V_{RMS}	140	V
Maximum DC blocking voltage	V_{DC}	200	V
Average forward current at $T_A=85\text{ °C}$	$I_{F(AV)}$	2	A
Peak forward surge current: 8.3 ms single half sine wave superimposed on rated load	I_{FSM}	40	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)

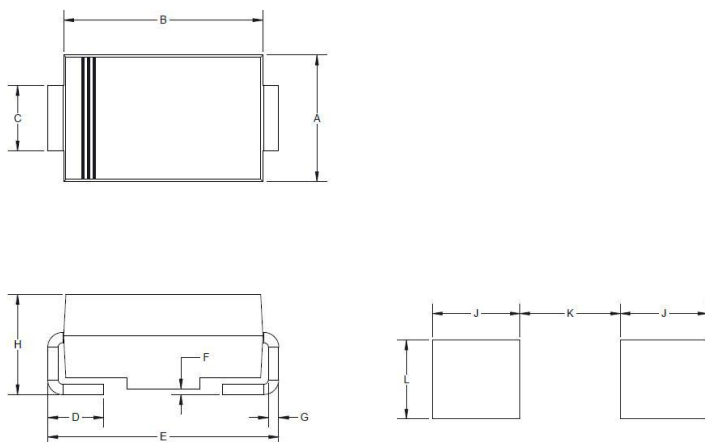
Parameter	Test condition	Symbol	min	typ	max	Unit
Forward voltage	$I_F=1\text{ A}, T_j=25\text{ °C}$	V_F	-	-	1	V
	$I_F=2\text{ A}, T_j=25\text{ °C}$	V_F	-	-	1.05	V
Reverse current at rated DC blocking voltage	$T_j=25\text{ °C}$	I_R	-	-	5	μA
	$T_j=150\text{ °C}$	I_R	-	-	200	μA
Reverse recovery time	$I_F=0.5\text{ A}, I_R=1\text{ A}, I_{rr}=0.25\text{ A}$	t_{rr}	-	-	25	ns

Thermal resistances

Symbol	Parameter	min	typ	max	Unit
$R_{th(j-a)}$	Thermal resistance from junction to ambient	-	-	100	°C /W

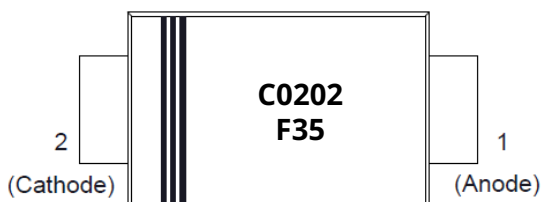
Note: Mounted on P.C.B. with 8.0 mm x 8.0 mm copper pad areas.

Mechanical drawing, pad layout, marking-mm



Dimension	min	max
A	2.60	3.00
B	4.15	4.65
C	1.25	1.65
D	0.95	1.52
E	4.90	5.30
F	0.051	0.203
G	0.15	0.31
H	2.00	2.44
J	2.00	-
K	-	2.30
L	1.80	-

Marking

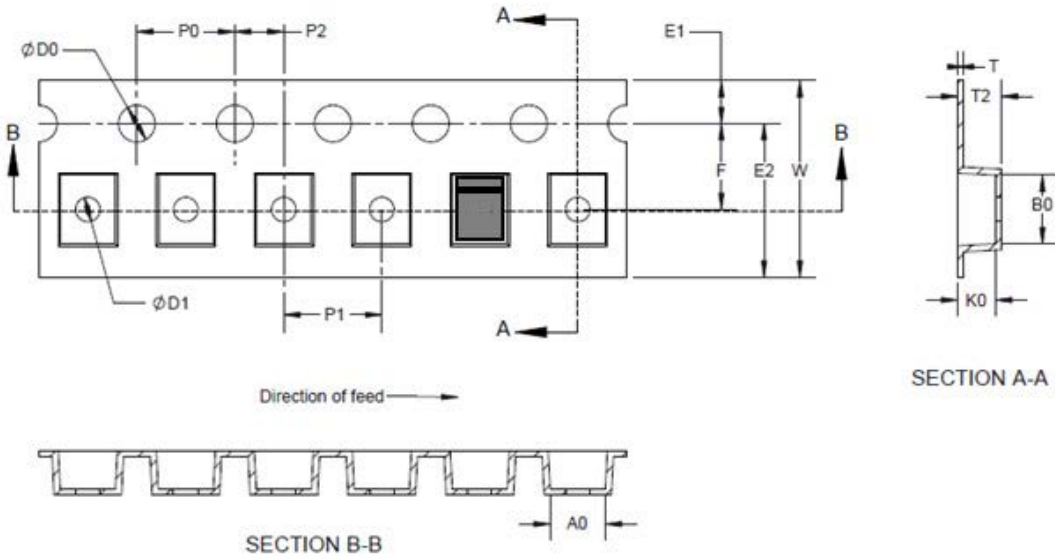


Product information

C	Hyperfast
02	$I_{E(AV)}$: 2 A
02	V_{RRM} : 200 V
F35	Date code

Packaging information-mm

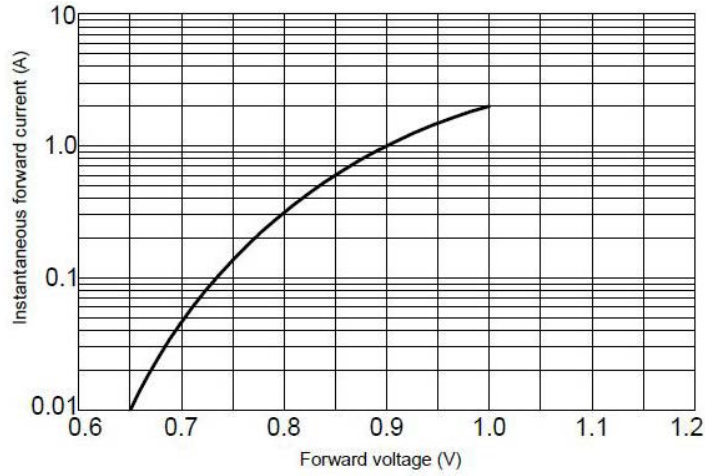
Unit weight (g/pcs) typ.	Reel (pcs)	Per carton (pcs)	Reel diameters (mm)
0.0673	7,500	120,000	330



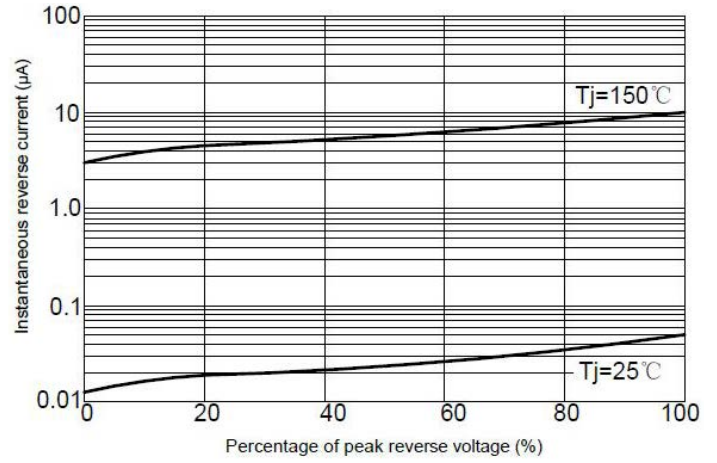
Dimension	Tolerance	Value
W	± 0.20	12
F	± 0.20	5.5
E1	± 0.20	1.75
P0	± 0.20	4
P1	± 0.20	4
P2	± 0.20	2
D0	± 0.10	1.55
D1	± 0.20	1.55
A0	± 0.30	2.79
B0	± 0.30	5.33
K0	± 0.15	2.54
T	± 0.10	0.25
T2	± 0.25	2.79

Typical characteristics

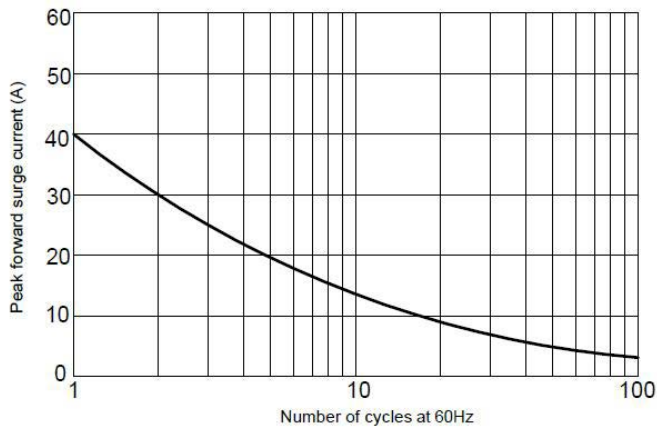
Typical forward characteristics (+25 °C)



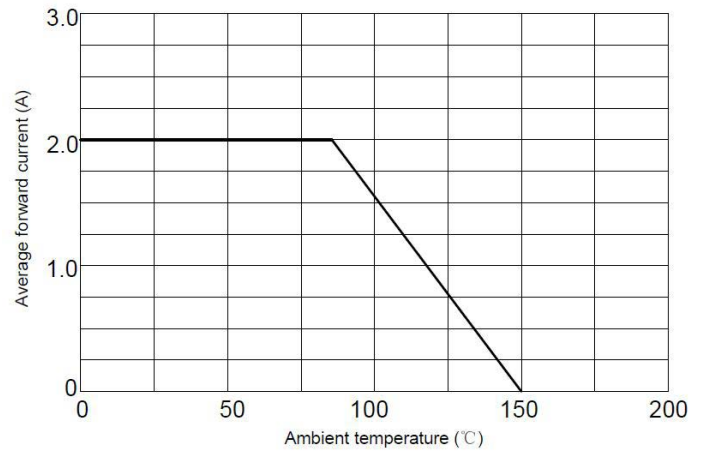
Typical reverse characteristics



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



Forward current derating curve



Solder reflow profile

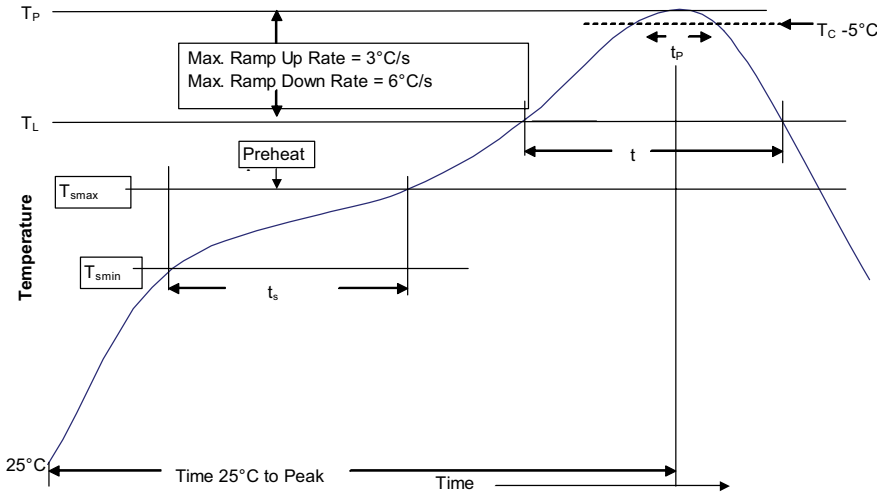


Table 1 - Standard SnPb solder (T_c)

Package thickness	Volume mm ³ <350	Volume mm ³ ≥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 mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >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	<ul style="list-style-type: none"> Temperature min. (T_{smin}) Temperature max. (T_{smax}) Time (T_{smin} to T_{smax}) (t_s) 	<ul style="list-style-type: none"> 100 °C 150 °C 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	<ul style="list-style-type: none"> 183 °C 60-150 seconds 	<ul style="list-style-type: none"> 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.

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