

EREC0302SC

Hyperfast soft recovery rectifier



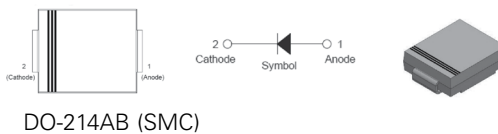
Product features

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

Mechanical data

- Case: DO-214AB molded plastic
- Terminals: Tin plated
- Weight: 0.26 grams typical

Package diagram/size and schematic



Applications

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

Environmental data



Part numbering system

E	R	E	C	03	02	SC
1	2	3	4	5	6	7

1	E=Eaton
2	R=Rectifier
3	E=Epitaxial process
4	C= Hyperfast
5	03= $I_{F(AV)}$: 3 A
6	02= V_{RRM} : 200 V
7	SC=Package: DO-214AB (SMC)

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 $T_J=140\text{ °C}$	$I_{F(AV)}$	3	A
Peak forward surge current: 8.3 ms single half sinewave superimposed on rated load	I_{FSM}	100	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)

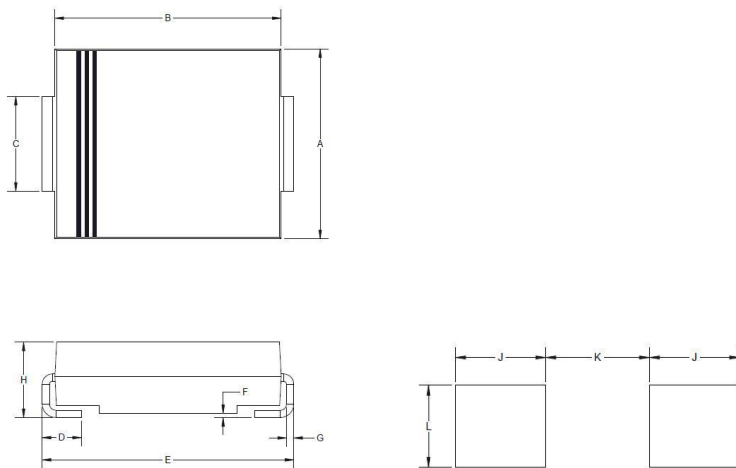
Parameter	Test condition	Symbol	min	typ	max	Unit
Forward voltage @ $I_F=3\text{ A}$	$T_J=25\text{ °C}$	V_F	-	-	0.875	V
	$T_J=150\text{ °C}$	V_F	-	-	0.8	V
Reverse current at rated DC blocking voltage	$T_J=25\text{ °C}$	I_R	-	-	5	μA
	$T_J=150\text{ °C}$	I_R	-	-	200	μA
Reverse recovery time	$I_F=0.5\text{ A}, I_R=1\text{ A}, I_{rr}=0.25\text{ A}$	t_{rr}	-	-	25	ns
	$I_F=1\text{ A}, di/dt=50\text{ A}/\mu\text{s}$	t_{rr}	-	-	35	ns

Thermal resistances

Symbol	Parameter	min	typ	max	Unit
$R_{th(j-l)}$	Thermal resistance from junction to lead	-	11	-	°C /W

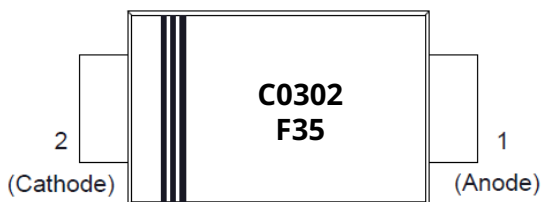
Note: Mounted on P.C.B. with 8.0 mm x 8.0 mm copper pad areas.

Mechanical drawing, pad layout, marking-mm



Dimension	min	max
A	5.75	6.25
B	6.90	7.40
C	2.75	3.25
D	0.95	1.52
E	7.70	8.20
F	0.051	0.203
G	0.15	0.31
H	2.15	2.62
J	2.40	-
K	-	4.20
L	3.30	-

Marking

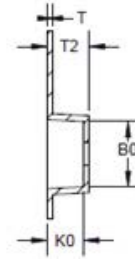
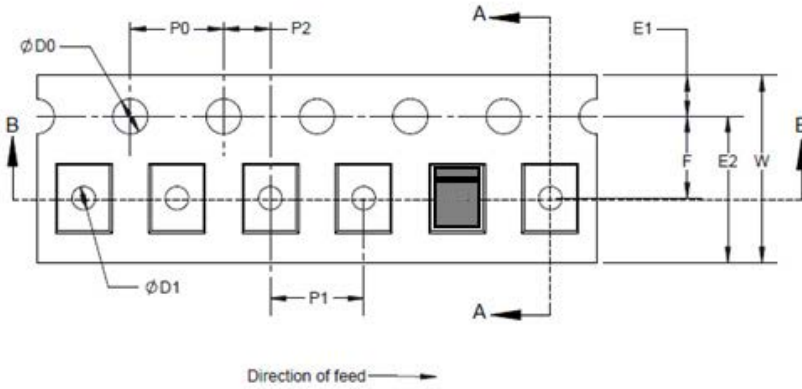


Product information

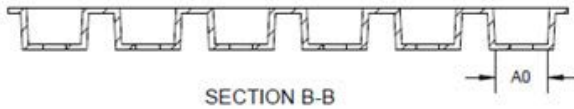
C	Hyperfast
03	$I_{F(AV)}$: 3 A
02	V_{RRM} : 200 V
F35	Date code

Packaging information-mm

Unit weight (g/pcs) typ.	Reel (pcs)	Per carton (pcs)	Reel diameters (mm)
0.26	3,000	36,000	330



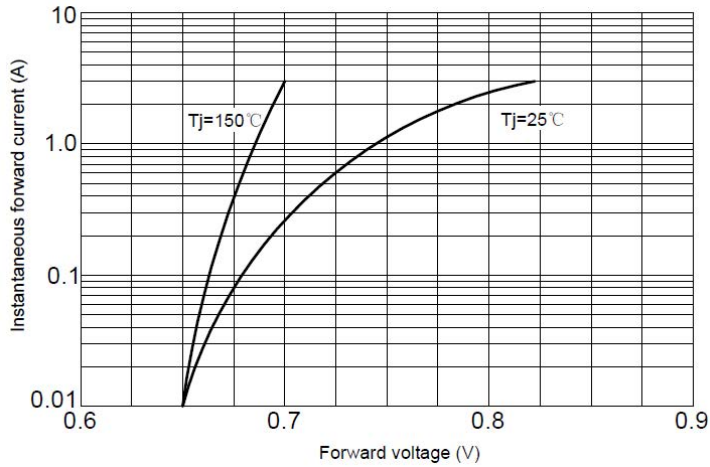
SECTION A-A



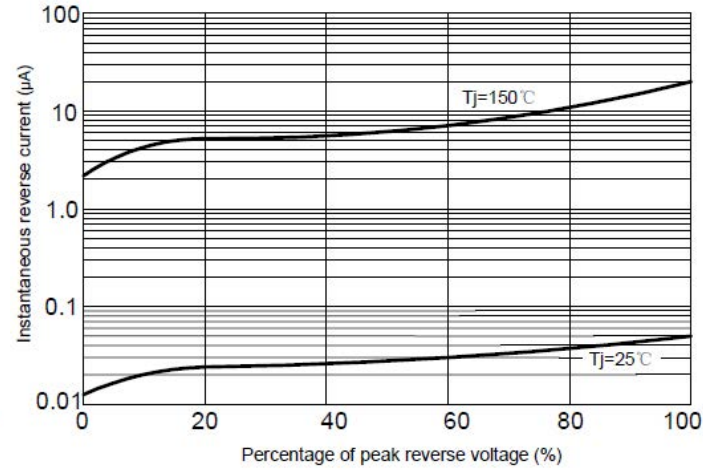
Dimension	Tolerance	Value
W	±0.20	16
F	±0.20	7.5
E1	±0.20	1.75
P0	±0.20	4
P1	±0.20	8
P2	±0.20	2
D0	±0.10	1.55
D1	±0.20	1.55
A0	±0.30	6.05
B0	±0.30	8.31
K0	±0.15	2.54
T	±0.10	0.25
T2	±0.25	2.79

Typical characteristics

Typical forward characteristics



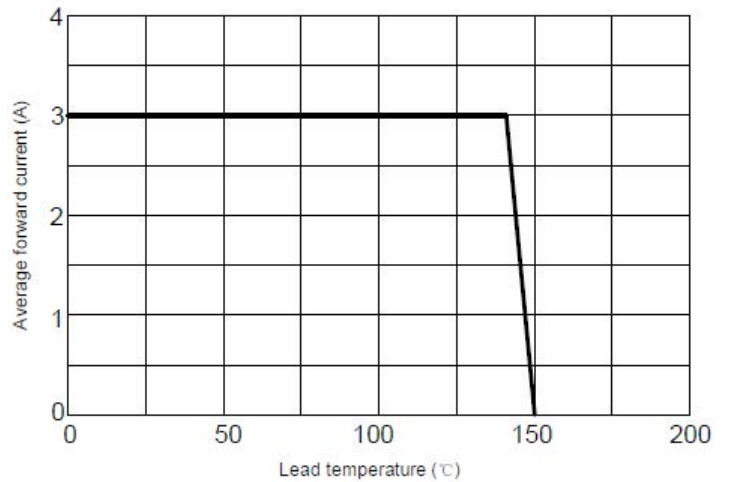
Typical reverse characteristics



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



Forward current derating curve



Solder reflow profile

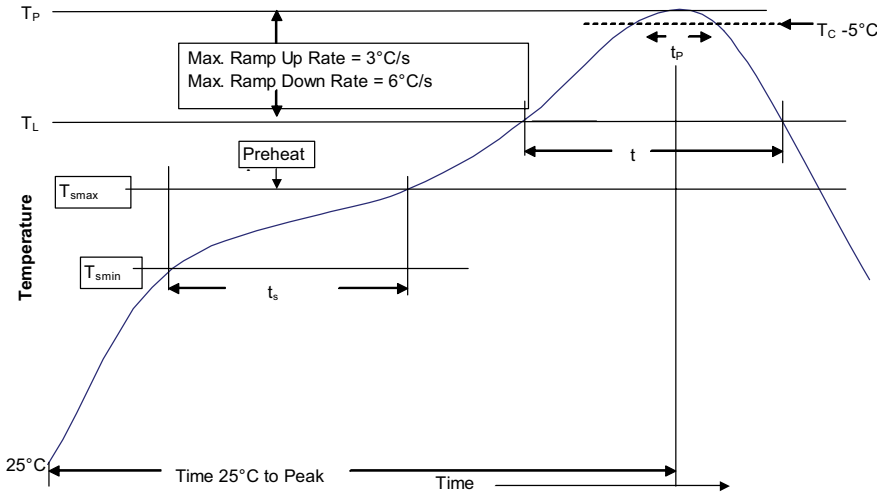


Table 1 - Standard SnPb solder (T_C)

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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