

## Surface Mount Super Fast Recovery Rectifier

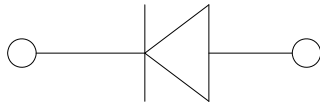


### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Super Fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Part no. with suffix "Q" means AEC-Q101 qualified

### Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, automotive and telecommunication.



### Mechanical Data

- **Package:** DO-214AC (SMA)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

### ■Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	ES1AQ	ES1BQ	ES1CQ	ES1DQ	ES1FQ	ES1GQ	ES1HQ	ES1JQ
Device marking code			ES1A	ES1B	ES1C	ES1D	ES1F	ES1G	ES1H	ES1J
Repetitive peak reverse voltage	V <sub>RRM</sub>	V	50	100	150	200	300	400	500	600
Average rectified output current @ 60Hz sine wave, Resistance load, T <sub>L</sub> (Fig.1)	I <sub>O</sub>	A	1.0							
Surge(non-repetitive)forward current @ 60Hz Half-sine wave,1 cycle, T <sub>a</sub> =25°C	I <sub>FSM</sub>	A	30							
Storage temperature	T <sub>stg</sub>	°C	-55~+150							
Junction temperature	T <sub>J</sub>	°C	-55~+150							

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	ES1AQ	ES1BQ	ES1CQ	ES1DQ	ES1FQ	ES1GQ	ES1HQ	ES1JQ
Maximum instantaneous forward voltage drop per diode	V <sub>F</sub>	V	I <sub>FM</sub> =1.0A	0.95			1.3		1.7		
Maximum reverse recovery time	T <sub>RR</sub>	ns	I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>rr</sub> =0.25A	35							
Typical junction capacitance	C <sub>J</sub>	pF	V <sub>R</sub> =4V, f=1MHz	21				13			
Maximum DC reverse current at rated DC blocking voltage per diode @ V <sub>RM</sub> =V <sub>RRM</sub>	I <sub>RRM</sub>	μA	T <sub>a</sub> =25°C	5							
			T <sub>a</sub> =125°C	100							



# ES1AQ THRU ES1JQ

## ■ Thermal Characteristics ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	ES1AQ	ES1BQ	ES1CQ	ES1DQ	ES1FQ	ES1GQ	ES1HQ	ES1JQ
Thermal Resistance	$R_{\theta J-A}$	$^\circ\text{C}/\text{W}$	85 <sup>1)</sup>							
	$R_{\theta J-L}$		35 <sup>1)</sup>							

Note

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

## ■ Characteristics (Typical)

Fig.1:  $I_O-T_L$  Curve

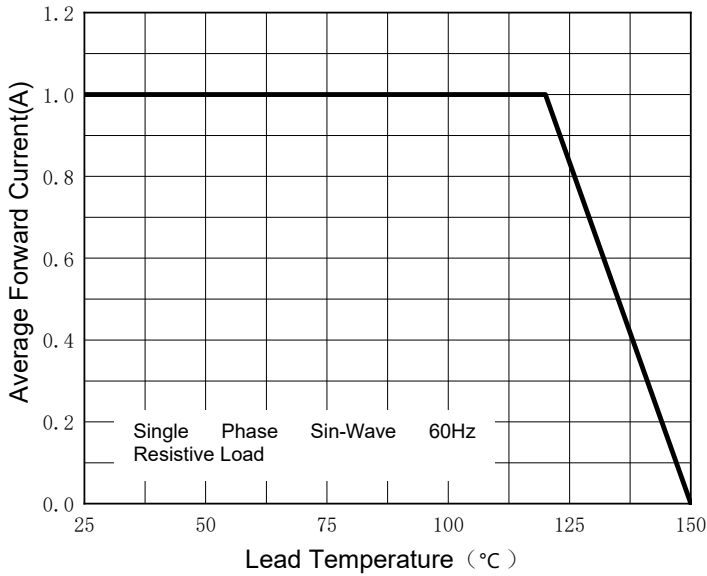


Fig.2: Surge Forward Current Capability

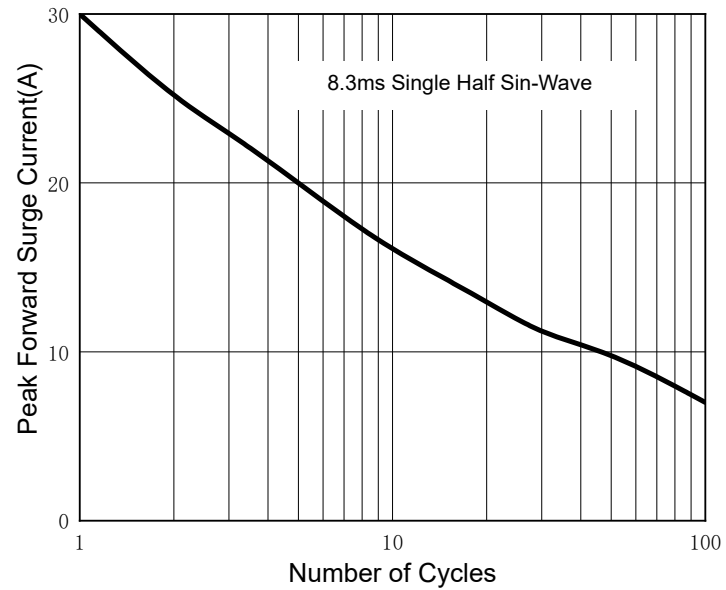
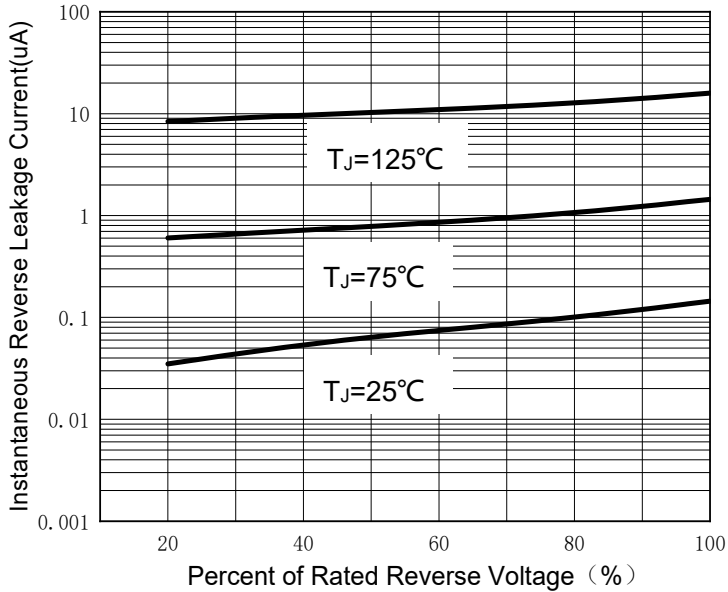
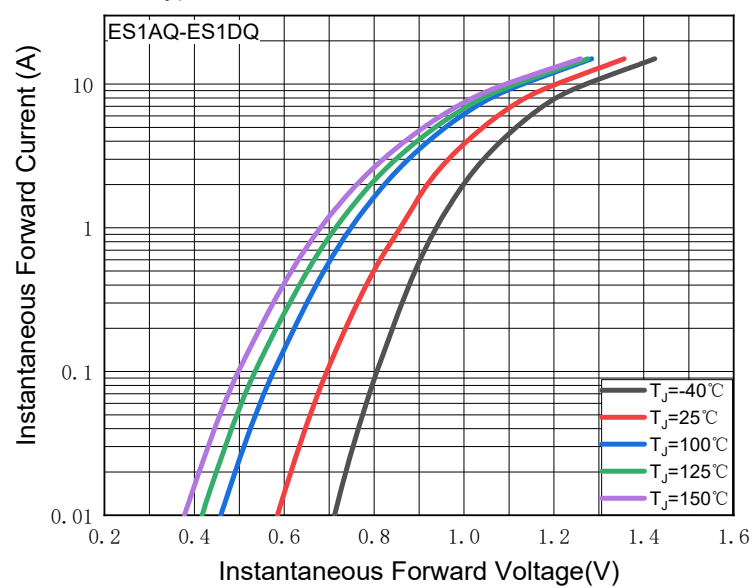


Fig.4: Typical Reverse Characteristics



Typical Instantaneous Forward Characteristics





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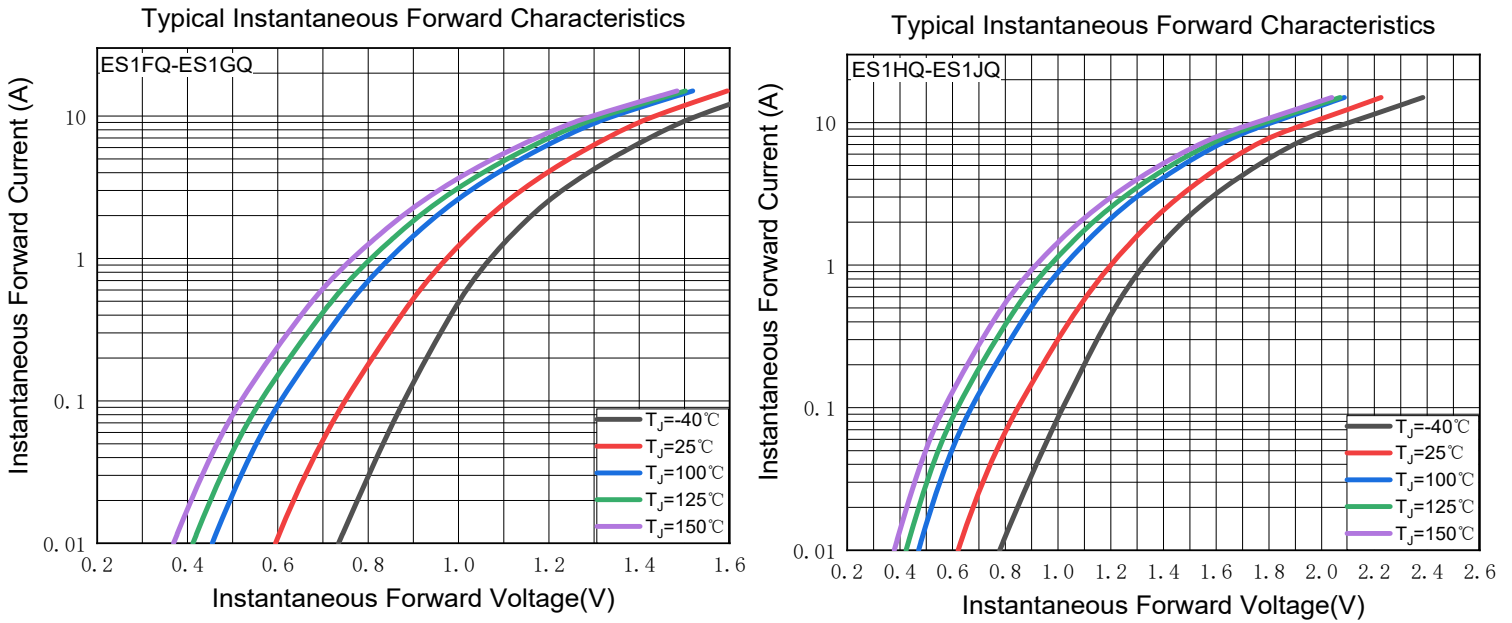
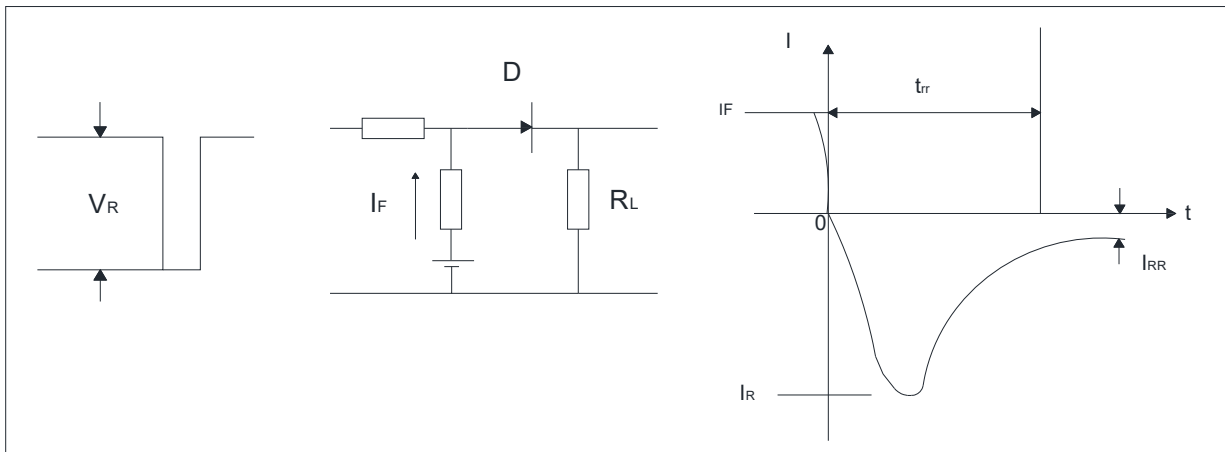


FIG5: Diagram of circuit and Testing wave form of reverse recovery time



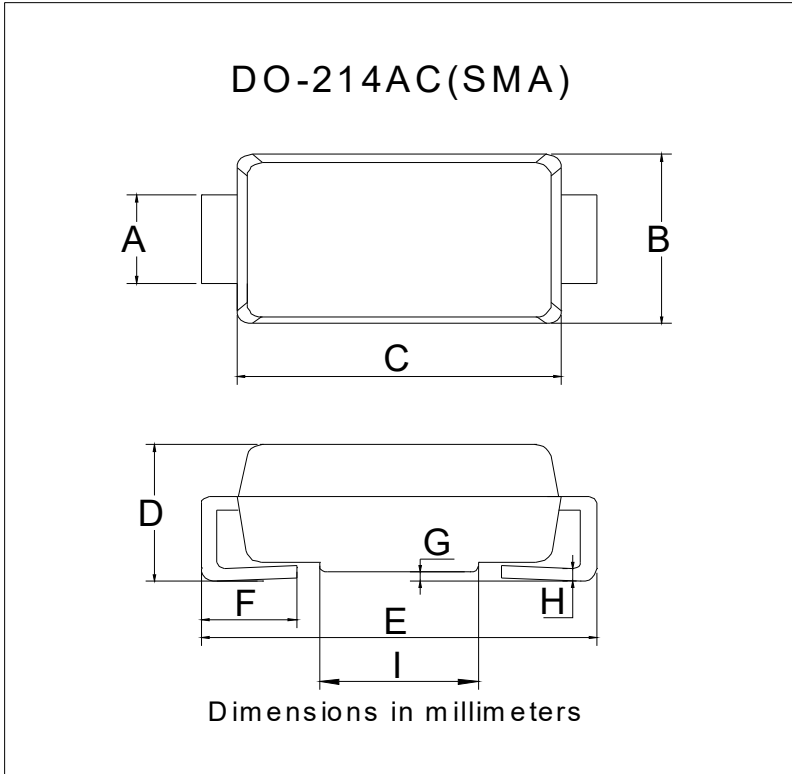


# ES1AQ THRU ES1JQ

## Ordering Information (Example)

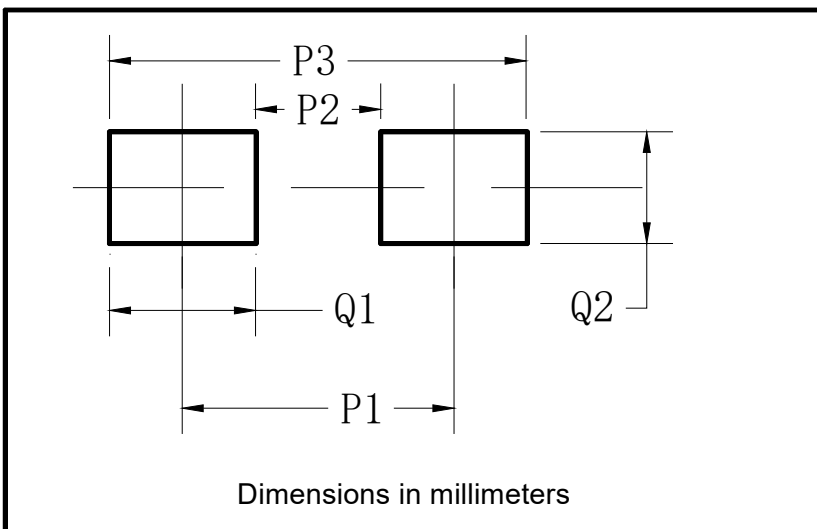
PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ES1AQ-ES1JQ	F2	Approximate 0.067	7500	/	120000	13" reel

## Outline Dimensions



DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.00	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.05	0.20
H	0.15	0.31
I	1.7	2.1

## Suggested Pad Layout



DO-214AC(SMA)	
Dim	Millimeters
P1	4.00
P2	1.50
P3	6.50
Q1	2.50
Q2	1.70



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