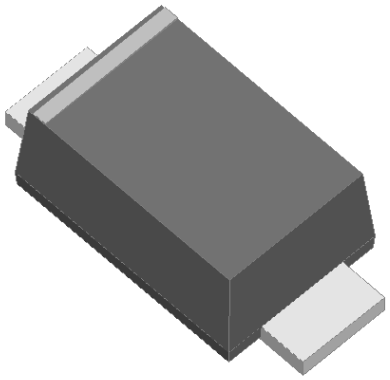
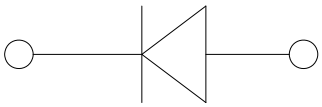
Surface Mount Schottky Rectifier





Features

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- High forward surge capability
- 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 low voltage high frequency inverters, freewheeling, DC/DC converters, automotive and polarity protection applications.

Mechanical Date

- **Package:** SOD-123FL
  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_a=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	S12Q	S13Q	S14Q
Device marking code			S12	S13	S14
Repetitive peak reverse voltage	V_{RRM}	V	20	30	40
Maximum RMS voltage	V_{RMS}	V	14	21	28
Maximum DC blocking voltage	V_{DC}	V	20	30	40
Maximum average forward rectified current at T_L (Fig.1)	I_O	A	1.0		
Surge(non-repetitive)forward current @60Hz half-sine wave,1 cycle, T_J=25℃	I_{FSM}	A	40		
Voltage rate of change (rated V_R)	dV/dt	V/μs	10000		
Storage temperature	T_{stg}	℃	-55 ~+150		
Junction temperature	T_J	℃	-55 ~+150		

■Electrical Characteristics (T_a=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		TYP	MAX	UNIT
Instantaneous forward voltage	V_F	I_F=1A	T_J=25℃	0.45	0.5	V
			T_J=125℃	-	0.4	
Reverse current	I_R	Rated V_R	T_J=25℃	-	200	μA
			T_J=125℃	-	20	mA
Typical junction capacitance	C_J	V_R=4V,f=1MHz		100	-	pF

■Thermal Characteristics (T_a=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	S12Q	S13Q	S14Q
Thermal resistance	$R_{\theta J-A}$	℃/W	85[1)]		
	$R_{\theta J-L}$		35[1)]		

Note:
(1)Thermal resistance between junction and ambient and between junction and lead mounted on P.C.B with 3mm*3mm copper pad areas.

■ Characteristics (Typical)

Fig.1:Forward Current Derating Curve

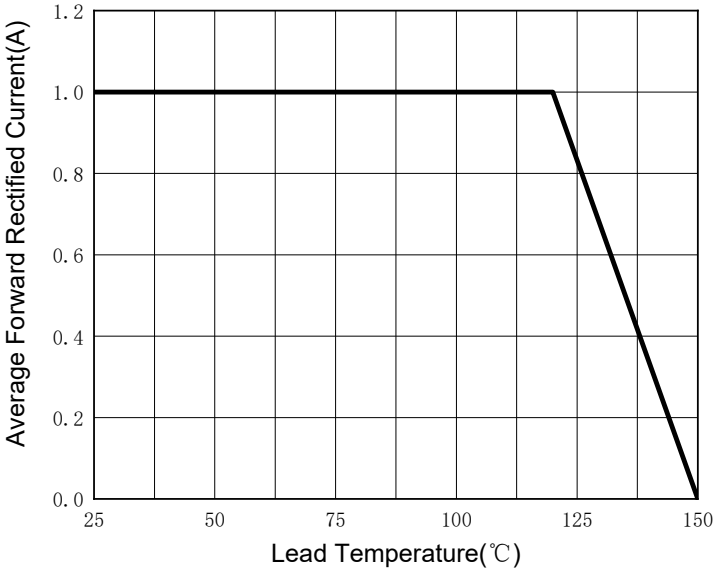


Fig.2:Maximum Non-Repetitive Peak Forward Surge Current

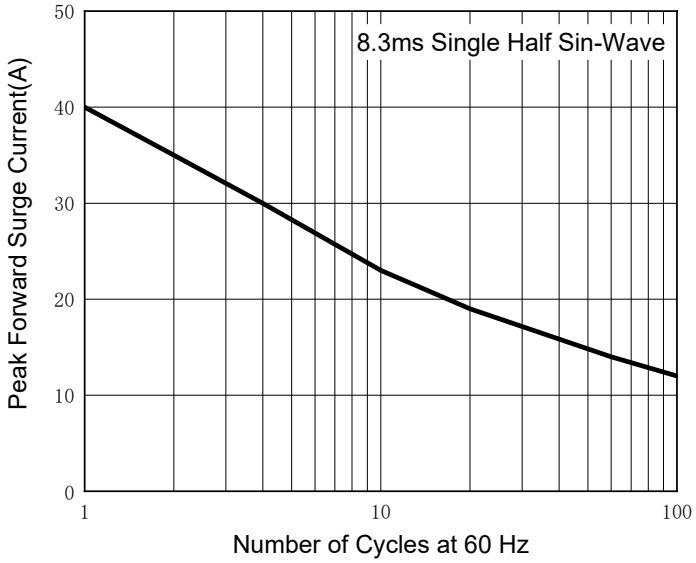


Fig.3:Typical Instantaneous Forward Characteristics

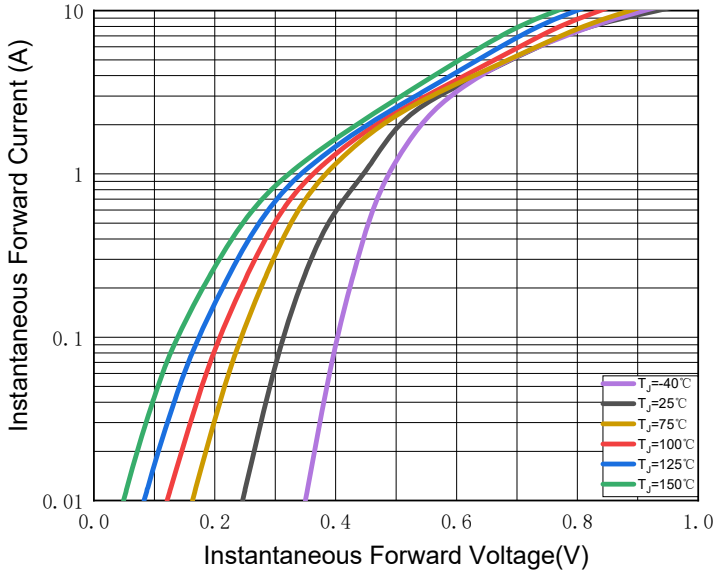
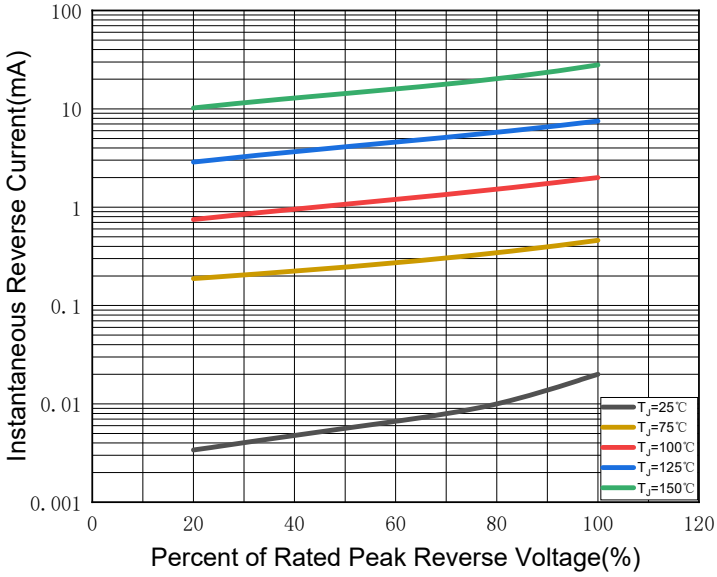


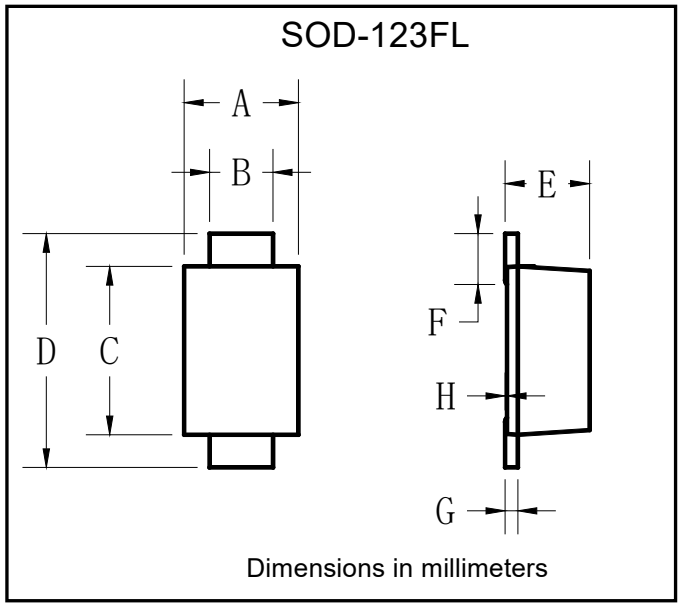
Fig.4:Typical Reverse Leakage Characteristics



■Ordering Information (Example)

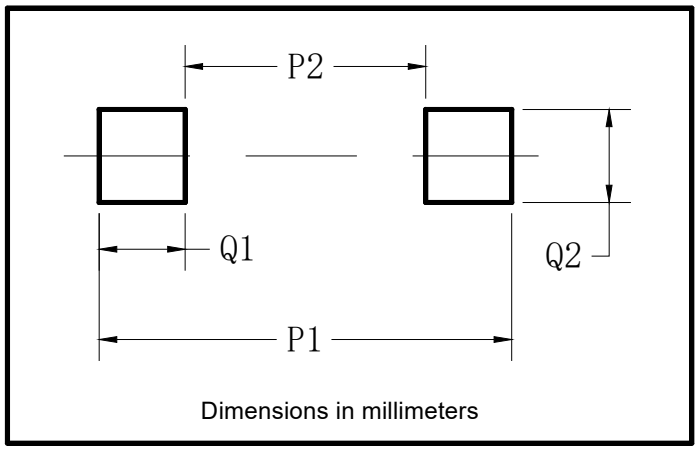
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
S12Q THRU S14Q	F1	Approximate 0.0169	3000	120000	7” reel

■ Outline Dimensions



SOD-123FL		
Dim	Min	Max
A	1.60	1.90
B	0.90	1.10
C	2.55	2.85
D	3.60	3.90
E	1.00	1.20
F	0.40	0.90
G	0.10	0.25
H	0.02	0.05

■ Suggested pad layout



SOD-123FL	
Dim	Millimeters
P1	3.90
P2	1.90
Q1	1.00
Q2	1.50

Disclaimer

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