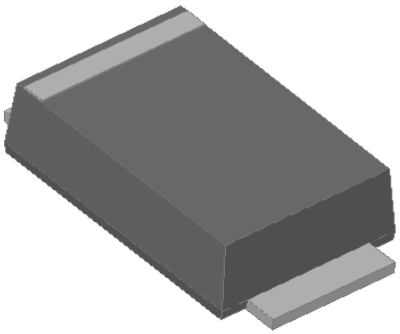
Surface Mount Schottky Rectifier

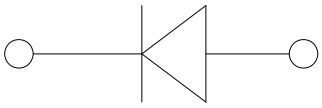


Features

- Guard ring for overvoltage protection
- Low power losses
- Extremely fast switching
- High forward surge capability
- High frequency operation
- 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 Data

- **Package**: SMAF
  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 (Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	S12FQ	S14FQ
Device marking code			S12F	S14F
Repetitive peak reverse voltage	V_{RRM}	V	20	40
Maximum RMS voltage	V_{RMS}	V	14	28
Maximum DC blocking voltage	V_{DC}	V	20	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（Ta=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 （Ta=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	S12FQ	S14FQ
Thermal Resistance	$R_{\theta J-A}$	℃/W	65[1)]	
	$R_{\theta J-L}$		20[1)]	

Note:
(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 5 mm x 5 mm copper pad areas

■ Characteristics(Typical)

Fig.1:Forward Current Derating Curve

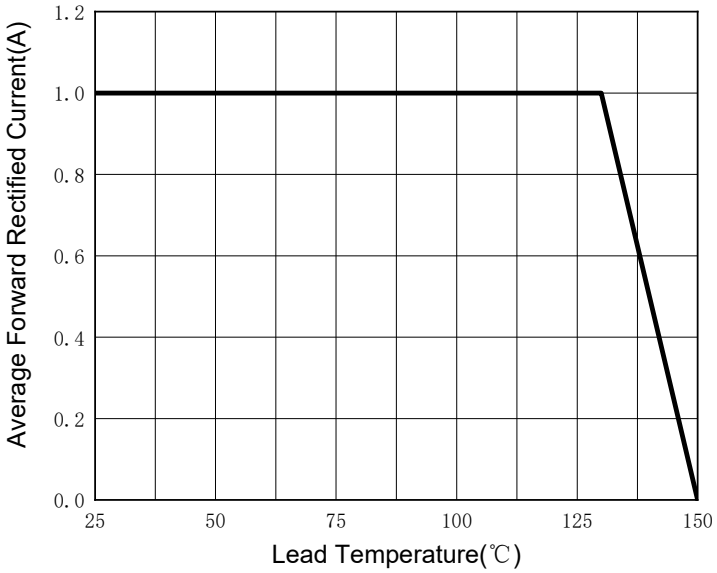


Fig.2:Maximum Non-Repetitive Peak Forward Surge Current

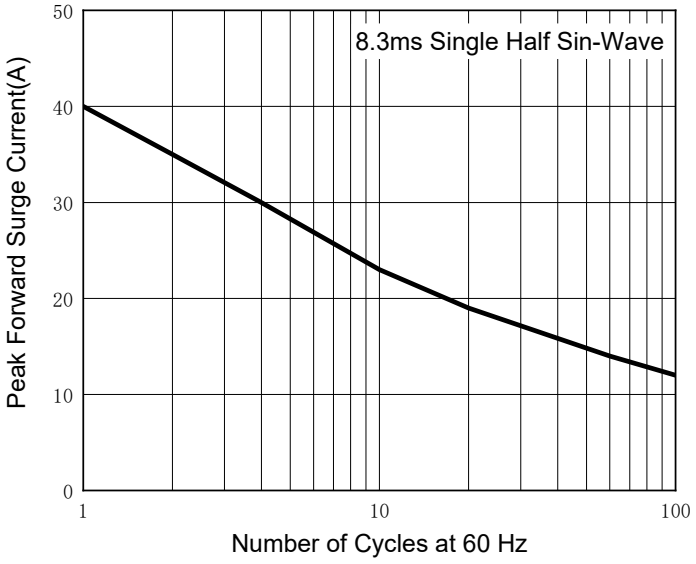


Fig.3:Typical Instantaneous Forward Characteristics

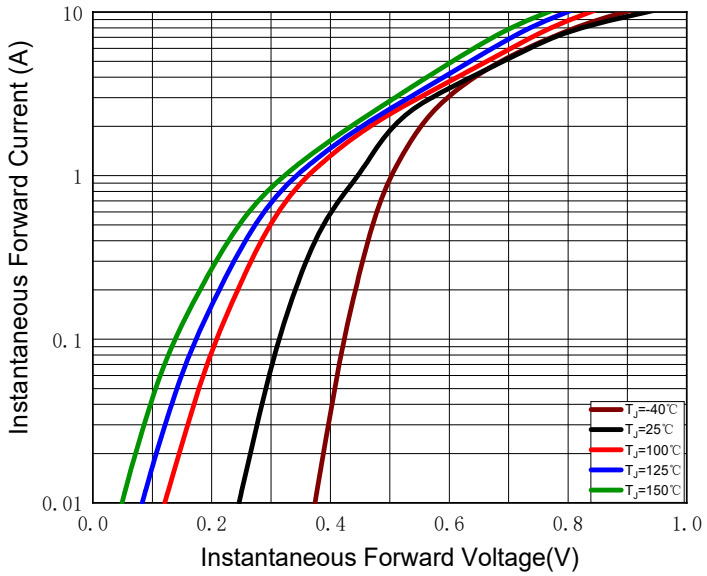
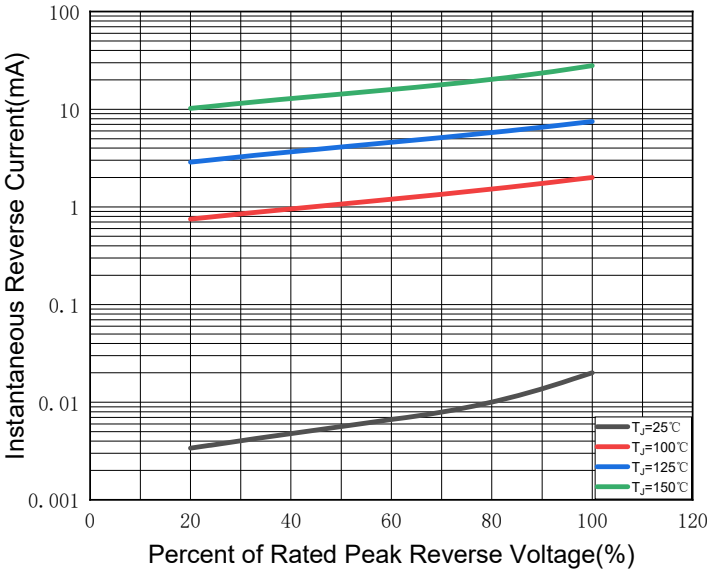


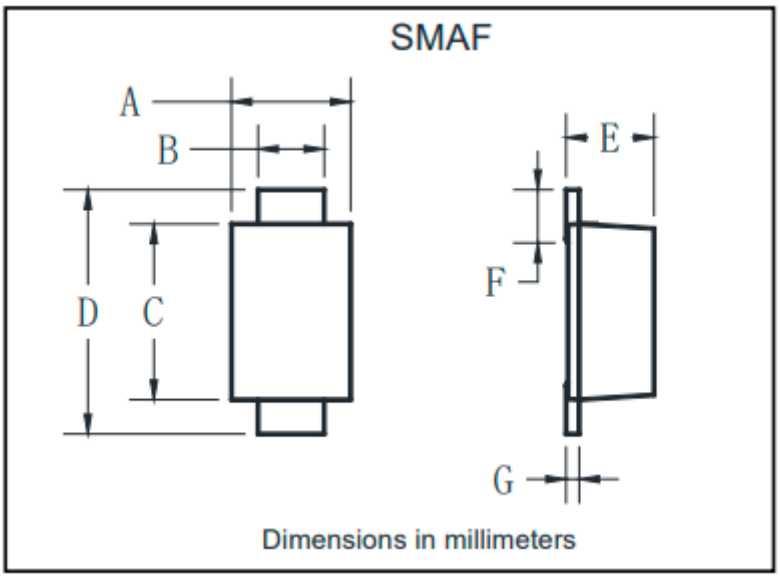
Fig.4:Typical Reverse Leakage Characteristics



■Ordering Information (Example)

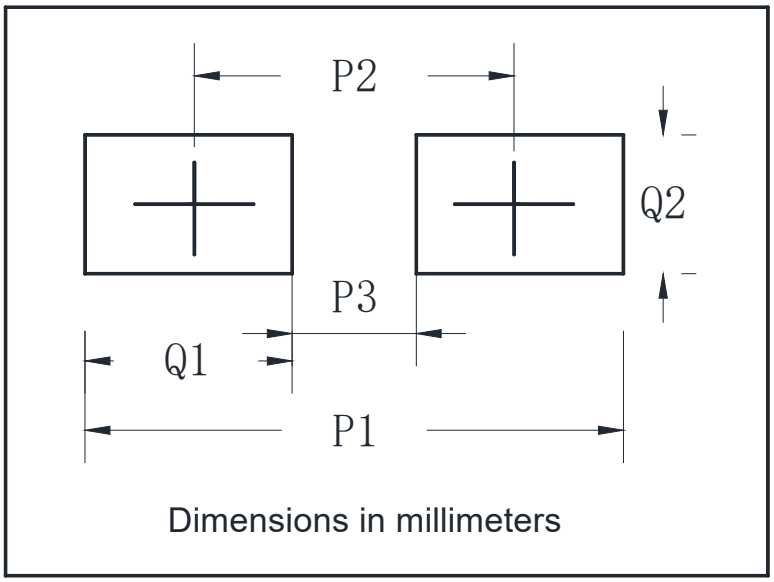
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
S12FQ-S14FQ	F1	Approximate 0.034	3000	96000	7” reel

■ Outline Dimensions



SMAF		
Dim	Min	Max
A	2.40	2.80
B	1.35	1.45
C	3.40	3.60
D	4.40	4.80
E	1.05	1.25
F	0.50	1.00
G	0.16	0.25

■ Suggested pad layout



SMAF	
Dim	Millimeters
P1	6.50
P2	4.00
P3	1.50
Q1	2.50
Q2	1.70

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