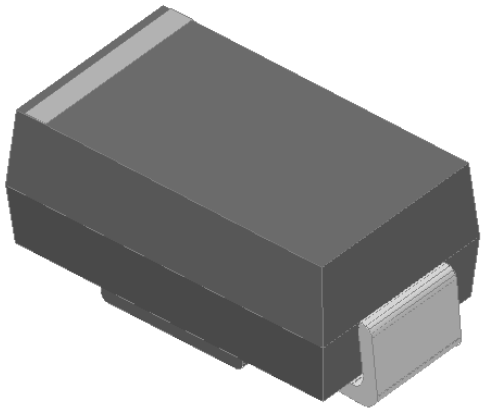
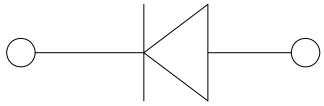
Surface Mount High Efficient Rectifier





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 (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	HS1AQ	HS1BQ	HS1DQ	HS1FQ	HS1GQ	HS1JQ	HS1KQ	HS1MQ
Device marking code			HS1A	HS1B	HS1D	HS1F	HS1G	HS1J	HS1K	HS1M
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	V	50	100	200	300	400	600	800	1000
Maximum RMS Voltage	V_{RMS}	V	35	70	140	210	280	420	560	700
Maximum DC blocking Voltage	V_{DC}	V	50	100	200	300	400	600	800	1000
Average rectified output current @60Hz sine wave, Resistance load, TL (FIG.1)	I_O	A	1.0							
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, Tj=25℃	I_{FSM}	A	30							
Storage temperature	T_{stg}	℃	-55 ~ +150							
Junction temperature	T_j	℃	-55 ~ +150							

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	HS1AQ	HS1BQ	HS1DQ	HS1FQ	HS1GQ	HS1JQ	HS1KQ	HS1MQ
Maximum instantaneous forward voltage	V_F	V	I_{FM}=1.0A	1.0			1.3		1.7		
Maximum reverse recovery time	t_{rr}	ns	I_F=0.5A, I_R=1.0A, I_{rr}=0.25A	50					75		
Maximum DC reverse current at rated DC blocking voltage	I_R	μA	T_j=25℃	5							
			T_j=125℃	100							
Typical junction capacitance	C_j	pF	V_R=4V, f=1 MHz	27			20		10		

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

PARAMETER	SYMBOL	UNIT	HS1AQ	HS1BQ	HS1DQ	HS1FQ	HS1GQ	HS1JQ	HS1KQ	HS1MQ
Typical Thermal resistance	$R_{\theta J-A}$(1)	℃/W	75							
	$R_{\theta J-L}$(1)		28							

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:Forward Current Derating Curve

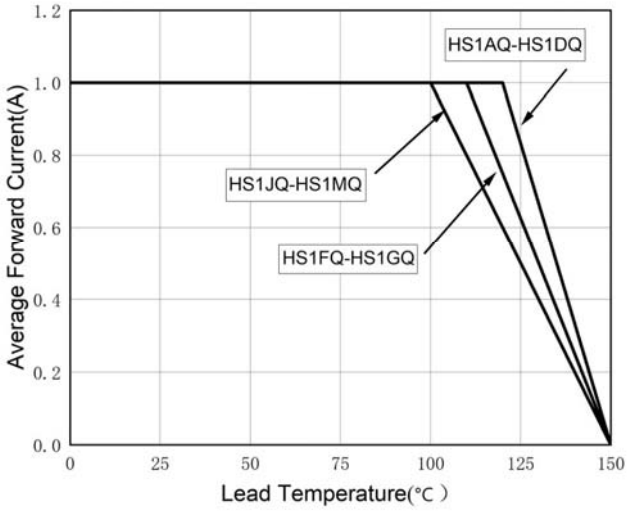


Fig.2: Forward Surge Current Capability

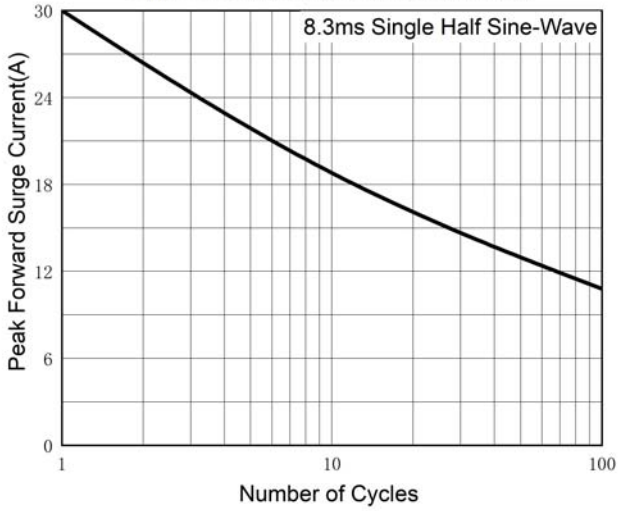


Fig.3:Typical Instantaneous Forward Characteristics

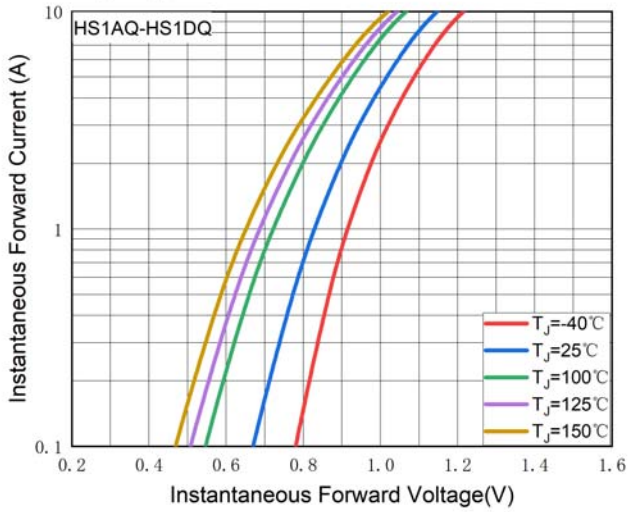


Fig.4:Typical Reverse Leakage Characteristics

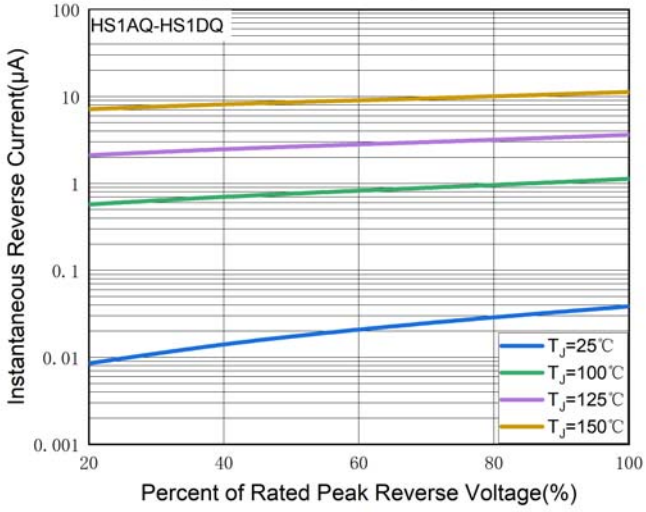


Fig.5:Typical Instantaneous Forward Characteristics

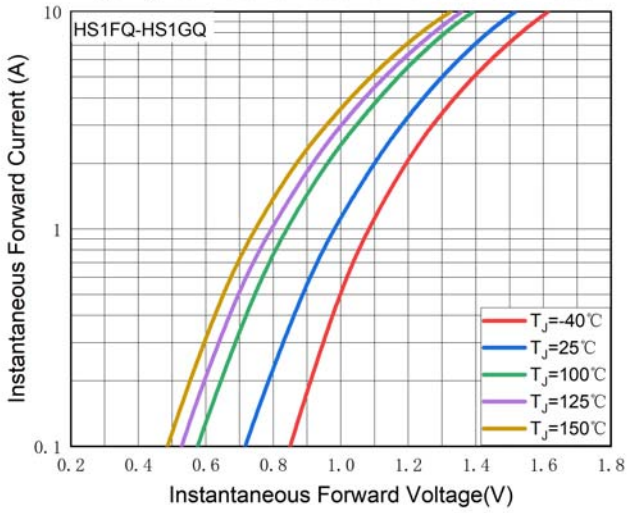


Fig.6:Typical Reverse Leakage Characteristics

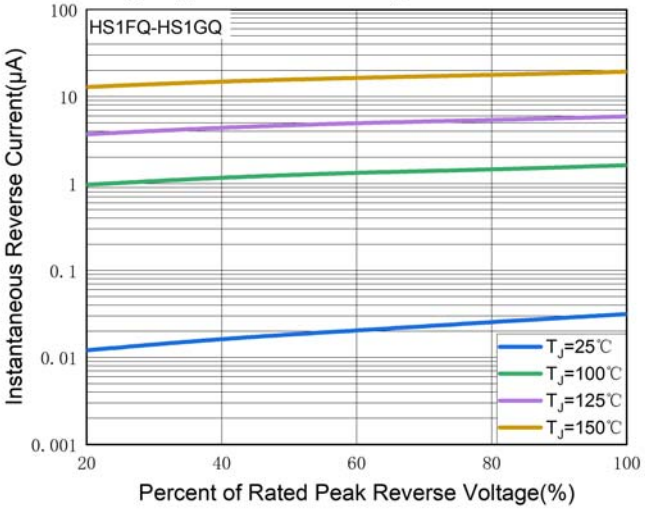


Fig.7:Typical Instantaneous Forward Characteristics

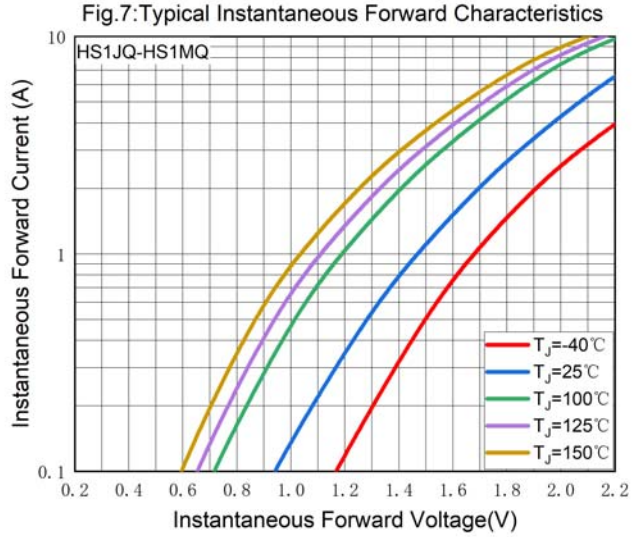


Fig.8:Typical Reverse Leakage Characteristics

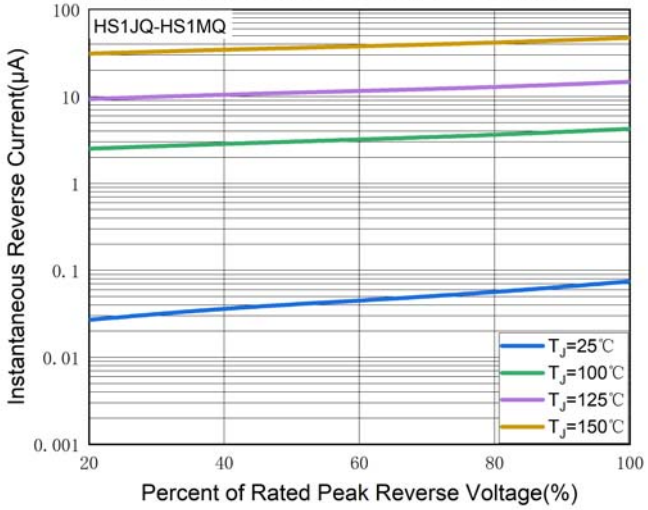
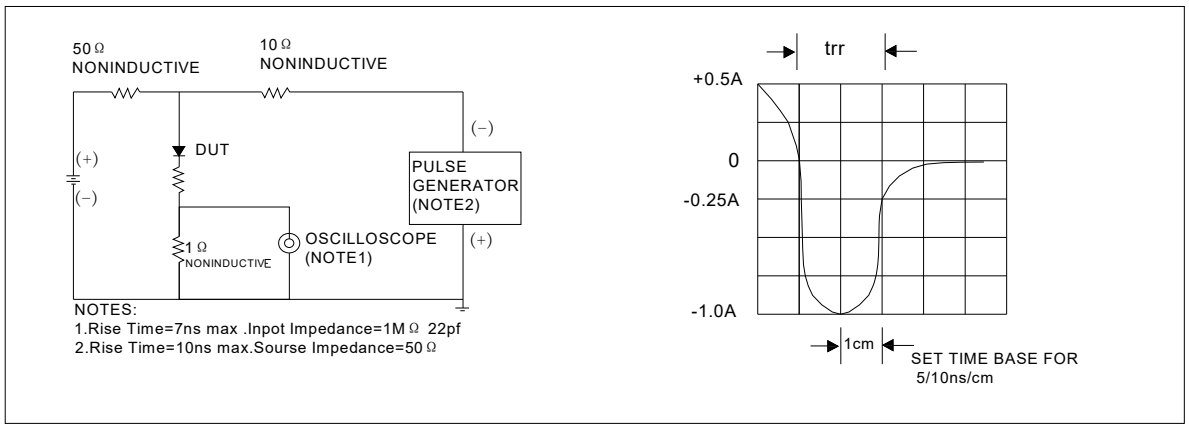


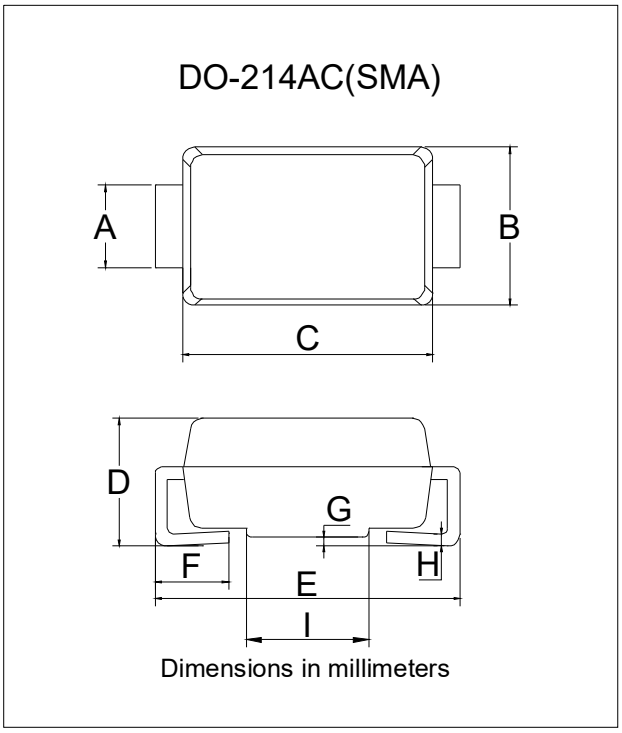
Fig.9: Diagram of circuit and Testing wave form of reverse recovery time



■Ordering Information (Example)

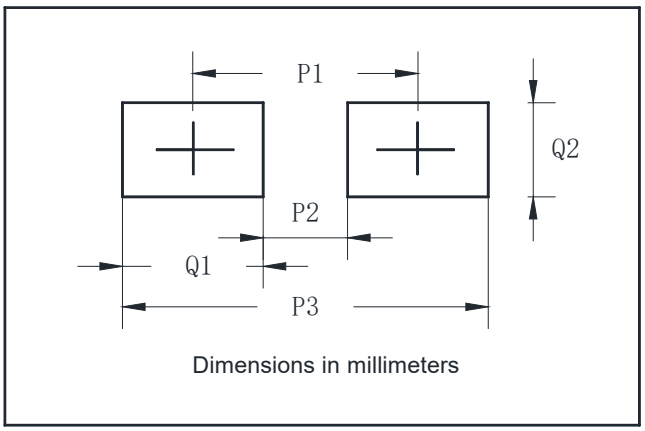
PREFERED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
HS1AQ- HS1MQ	F2	Approximate 0.067	7500	120000	13” reel

■ Outline Dimensions



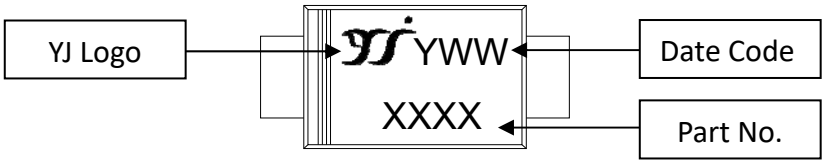
DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.00	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.05	0.20
H	0.15	0.31
I	1.7	2.1

■Suggested Pad Layout



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

■ Marking Information



Note:
1. All marking is at middle of the product body
2. All marking is in laser printing
3. XXXX is marking code, like HS1MQ marking code is HS1M.
4. Body color: Black
5. YWW is date code, “Y” is year. “WW” is week.
For instance:
The 17th week of 2024, date code is 417
The 17th week of 2025, date code is 517

Disclaimer

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The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

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