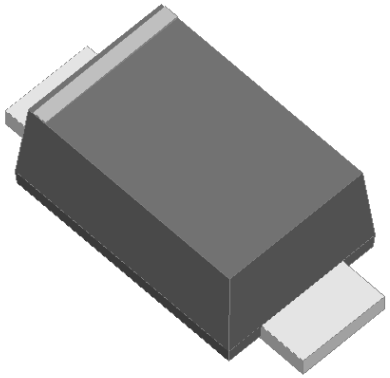
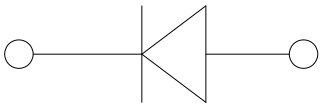
Surface Mount Ultra Fast Recovery Rectifier





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**: 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	U1AQ	U1BQ	U1CQ	U1DQ
Device marking code			U1A	U1B	U1C	U1D
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	V	50	100	150	200
Maximum RMS Voltage	V_{RMS}	V	35	70	105	140
Maximum DC blocking Voltage	V_{DC}	V	50	100	150	200
Average rectified output current @60Hz sine wave, Resistance load, T_L (Fig.1)	I_O	A	1.0			
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, T_J=25℃	I_{FSM}	A	40			
Current squared time @1ms≤t≤8.3ms T_J=25℃	I^2t	A^2s	3.735			
Storage temperature	T_{stg}	℃	-55 ~ +175			
Junction temperature	T_J	℃	-55 ~ +175			

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	U1AQ	U1BQ	U1CQ	U1DQ
Maximum instantaneous forward voltage	V_F	V	I_F=1.0A	0.92			
Maximum reverse recovery time	T_{RR}	ns	I_F=0.5A,I_R=1.0A,I_{rr}=0.25A	25			
Maximum DC reverse current at rated DC blocking voltage per diode@ V_{RM}=V_{RRM}	I_R	μA	T_J=25℃	2			
			T_J=125℃	20			
Typical junction capacitance	C_J	pF	V_R=4V,f=1MHz	15			

■Dynamic Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		U1AQ	U1BQ	U1CQ	U1DQ
Typical reverse Recovery Time	T_{RR}	ns	T_J=25℃	I_F=1A，di/dt=-50A/us V_{RM}=30V	25			
			T_J=25℃	I_F=1A di/dt=-200A/us V_{RM}=100V	18			
			T_J=125℃		24			
Typical peak recovery current	I_{RRM}	A	T_J=25℃		2.4			
			T_J=125℃		4			
Typical reverse recovery charge	Qrr	nC	T_J=25℃		20			
			T_J=125℃		45			

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

PARAMETER	SYMBOL	UNIT	U1AQ	U1BQ	U1CQ	U1DQ
Typical Thermal resistance	$R_{\theta J-A}$(1)	℃/W	65			
	$R_{\theta J-L}$(1)		25			
	$R_{\theta J-C}$(1)		20			

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

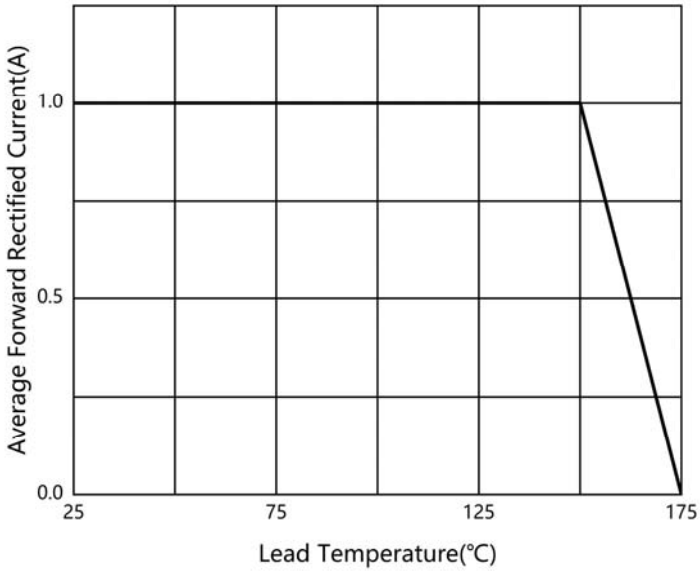


Fig.2:Maximum Non-Repetitive Peak Forward Surge Current

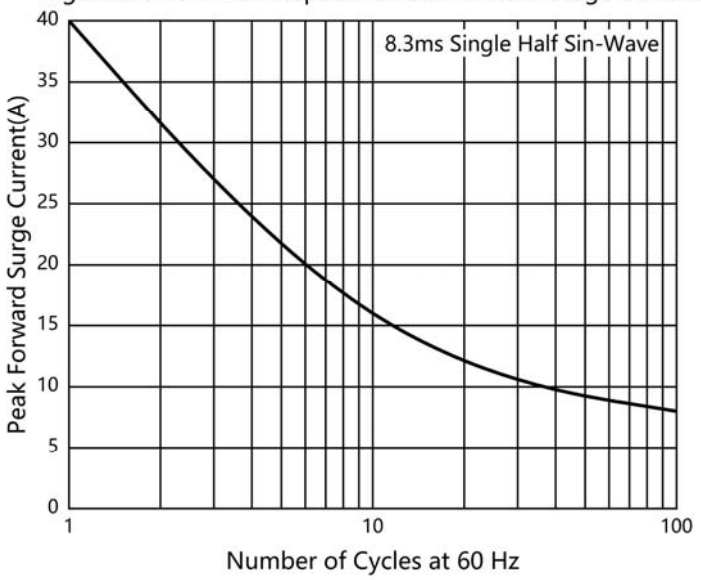


Fig.3:Typical Instantaneous Forward Characteristics

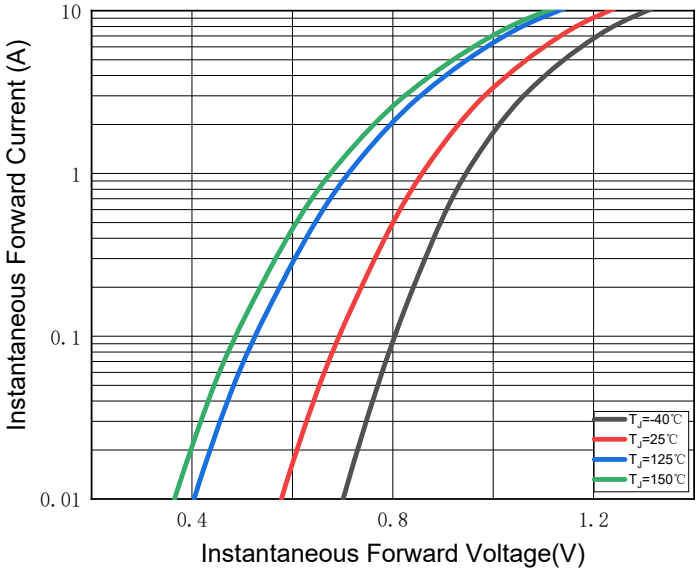


Fig.4:Typical Reverse Leakage Characteristics

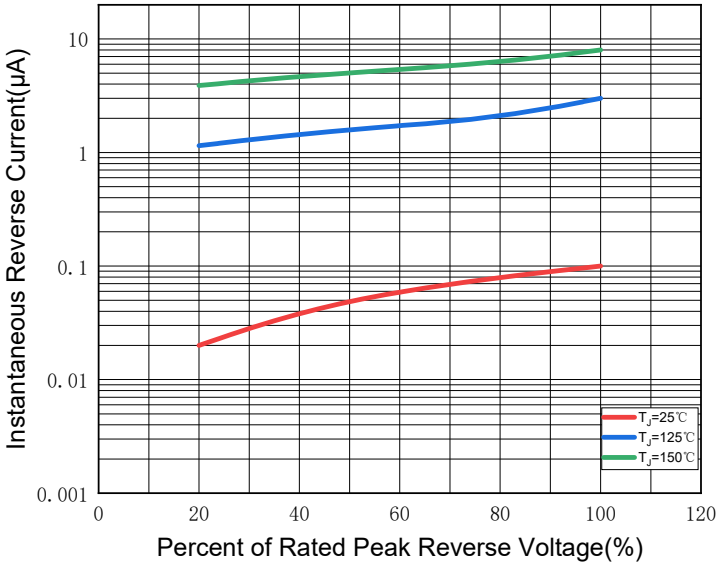
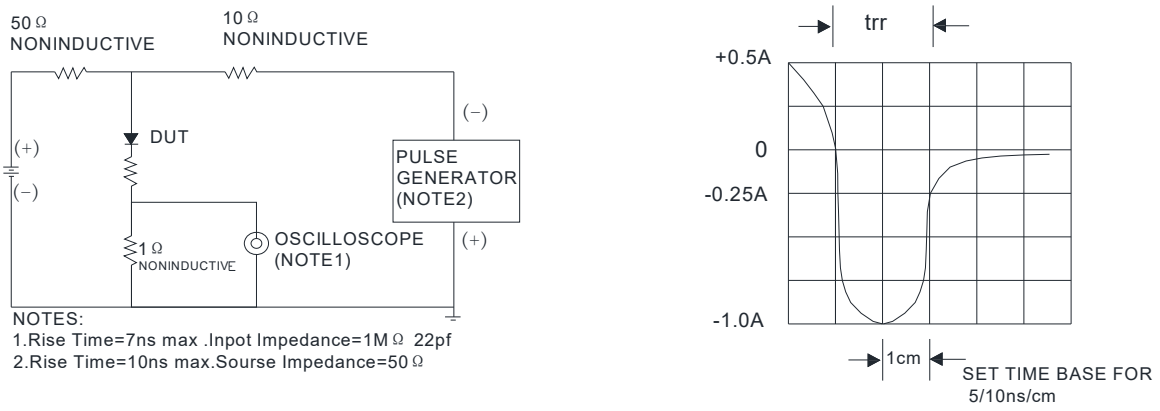


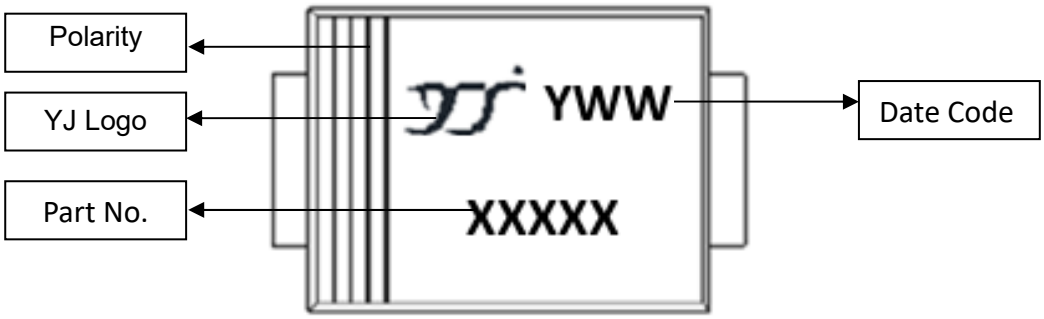
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■Ordering Information (Example)

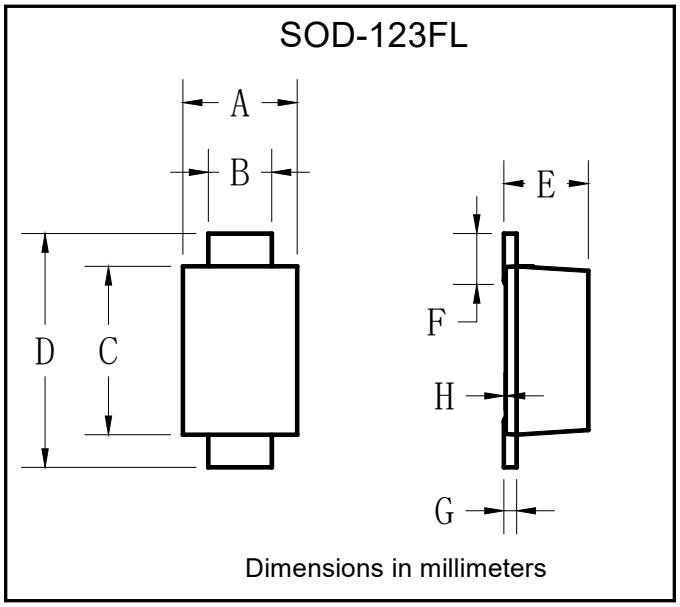
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
U1AQ- U1DQ	F1	Approximate 0.0169	3000	30000	120000	7” reel

■ Marking Information



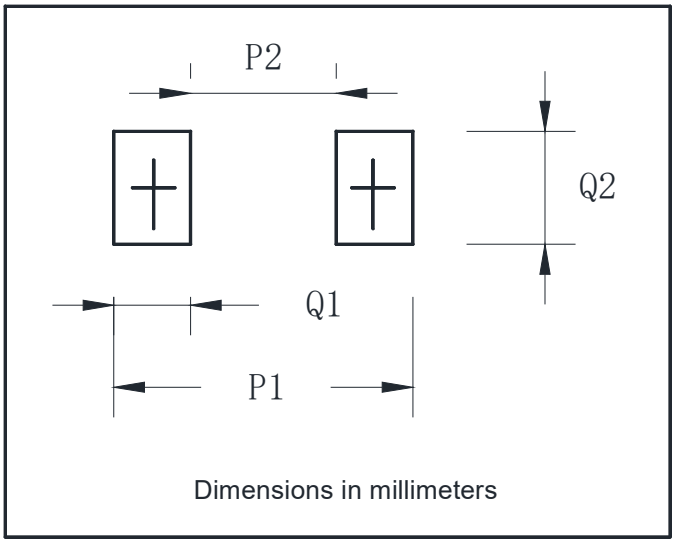
Note:
1. All marking is at middle of the product body
2. All marking is in laser printing
3. XXXXX is marking code, like U1DQ marking code is U1D
4. Body color: Black
5. YWW is date code, “Y” is year. “WW” is week.
For instance:
The 17th week of 2021, date code is 117
The 17th week of 2022, date code is 217

■ 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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