

Surface Mount Ultra Fast Recovery Rectifier

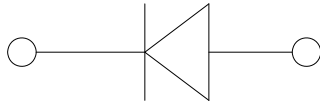


Features

- 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°C 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°C	I _{FSM}	A	30			
Current squared time @1ms≤t≤8.3ms T _J =25°C	I ² t	A ² s	3.735			
Storage temperature	T _{stg}	°C	-55 ~ +150			
Junction temperature	T _J	°C	-55 ~ +150			



■Electrical Characteristics (Ta=25°C 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	$T_J=25^\circ C$	2			
			$T_J=125^\circ C$	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	$T_J=25^\circ C$	$I_F=1A, di/dt=-50A/us$ $V_{RM}=30V$	25			
			$T_J=25^\circ C$		18			
			$T_J=125^\circ C$		24			
Typical peak recovery current	I_{RRM}	A	$T_J=25^\circ C$		$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=100V$	2.4		
			$T_J=125^\circ C$			4		
Typical reverse recovery charge	Q_{rr}	nC	$T_J=25^\circ C$			20		
			$T_J=125^\circ C$	45				

■Thermal Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	U1AQ	U1BQ	U1CQ	U1DQ
Typical Thermal resistance	$R_{\theta J-A}^{(1)}$	$^\circ C/W$	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

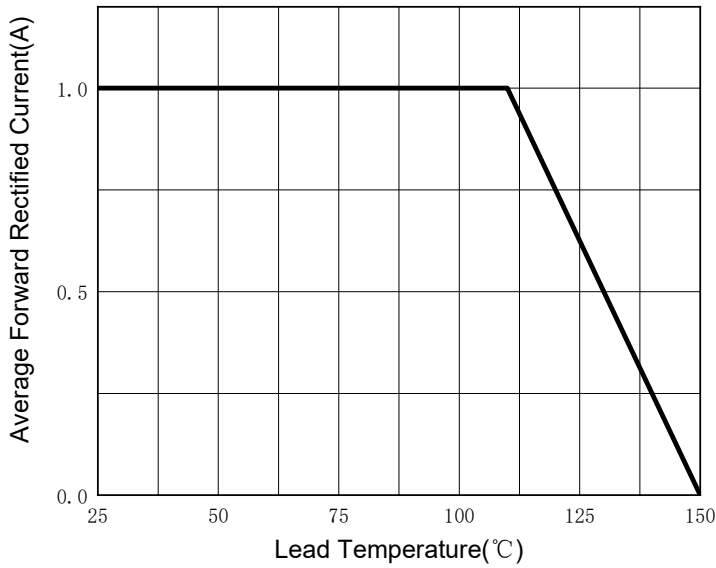


Fig.2: Maximum Non-Repetitive Peak Forward Surge Current

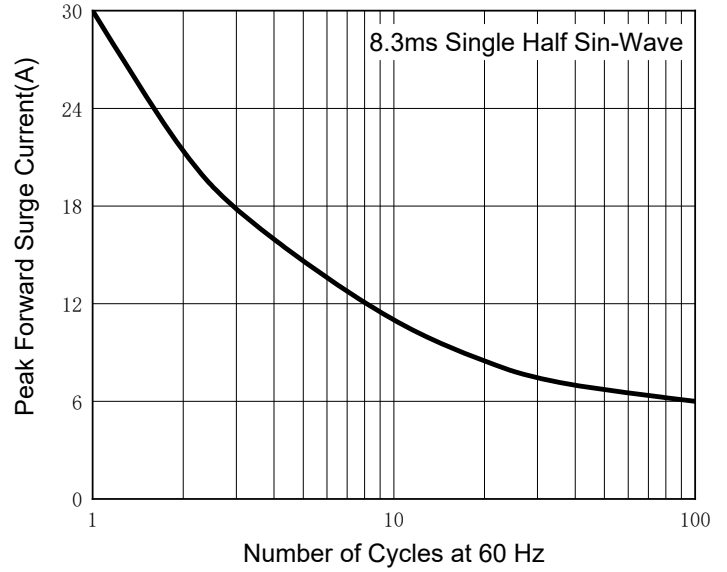


Fig.3: Typical Instantaneous Forward Characteristics

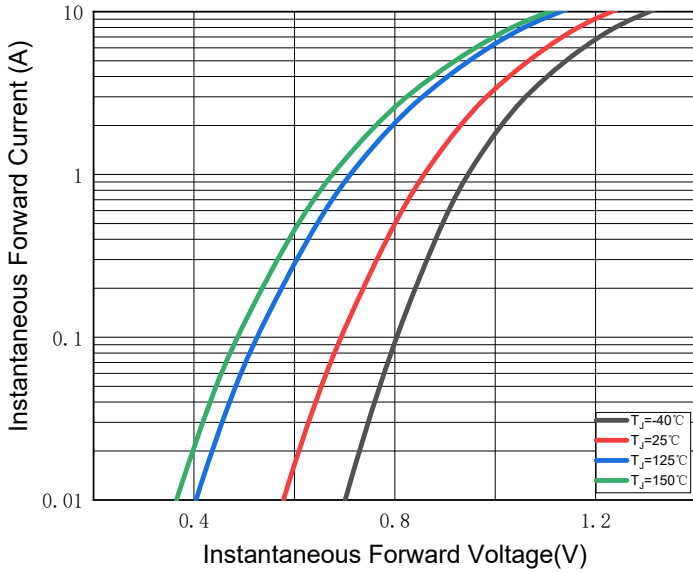


Fig.4: Typical Reverse Leakage Characteristics

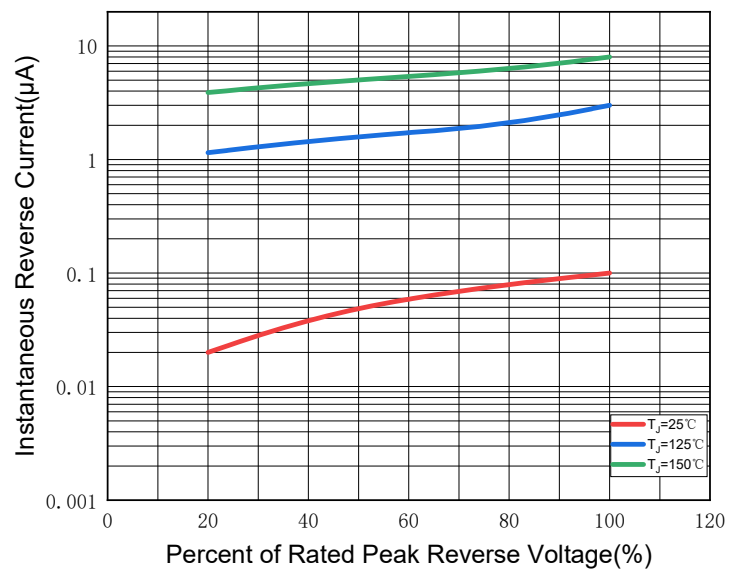
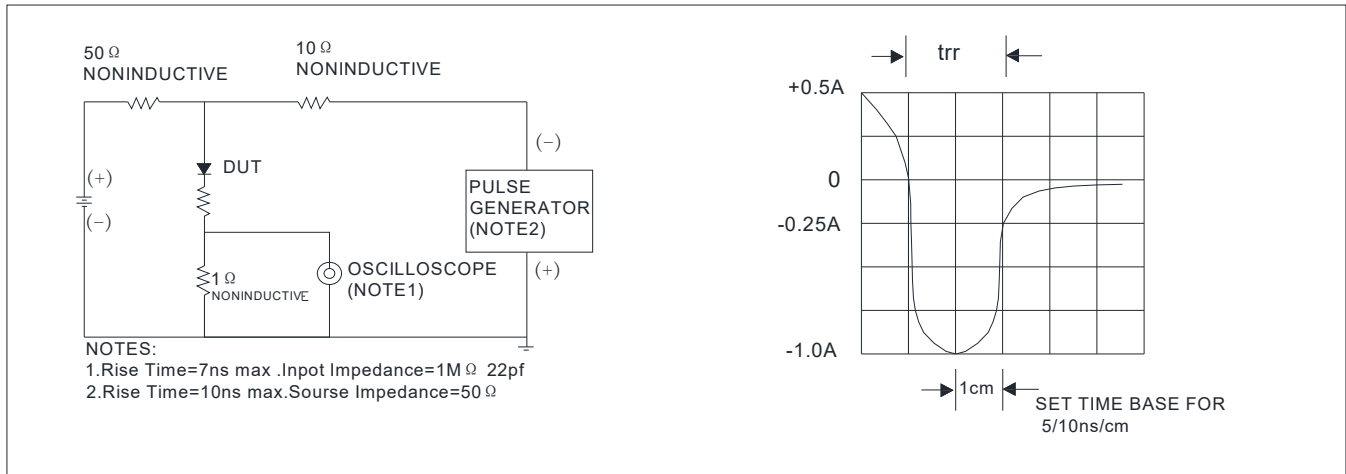


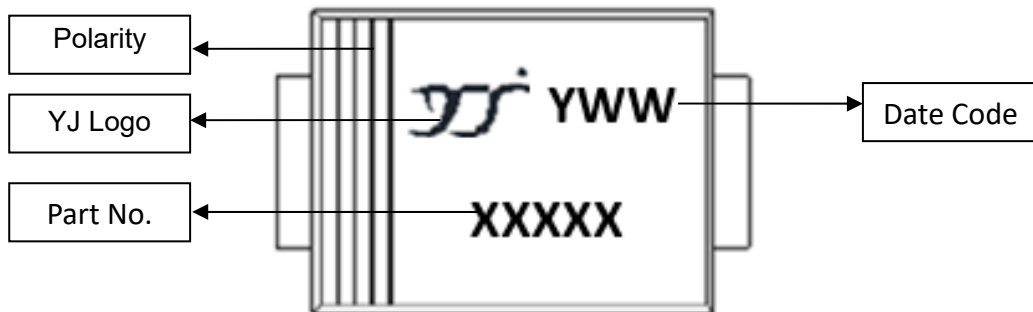
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



Ordering Information (Example)

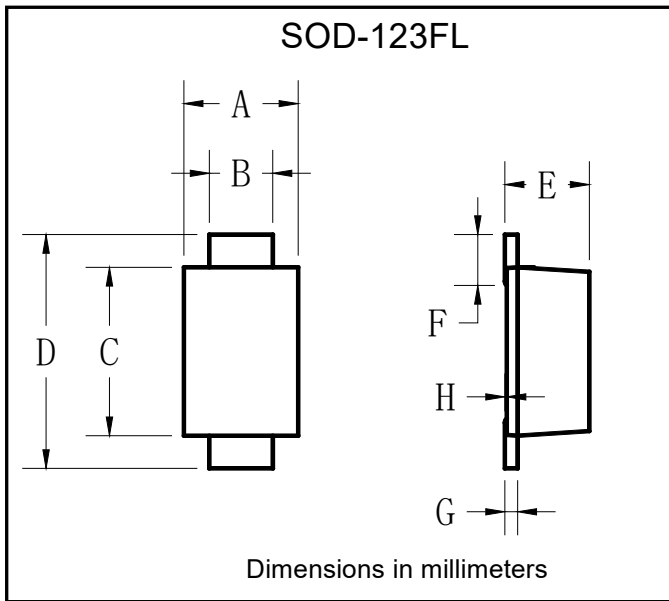
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
U1AQ- U1DQ	F1	Approximate 0.0169	3000	30000	120000	7" reel

Marking Information



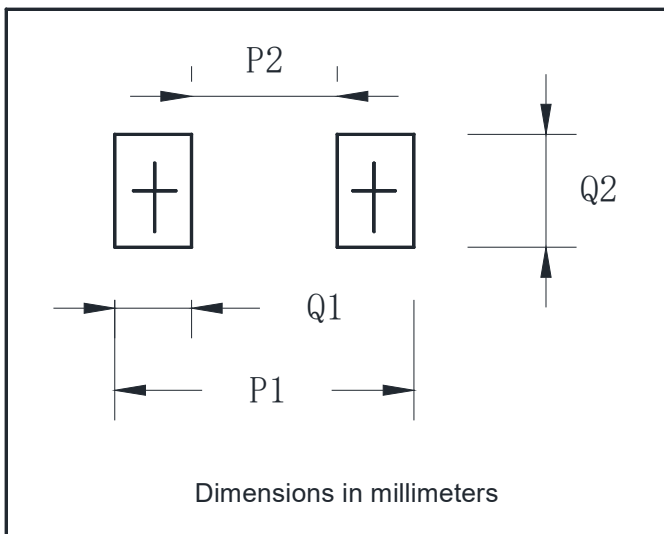
Note:
 1. All marking is at middle of the product body
 2. All marking is in laser printing
 3. XXXXX is marking code, like U1DQ marking code is U1D
 4. Body color: Black
 5. YWW is date code, "Y" is year. "WW" is week.
 For instance:
 The 17th week of 2021, date code is 117
 The 17th week of 2022, date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