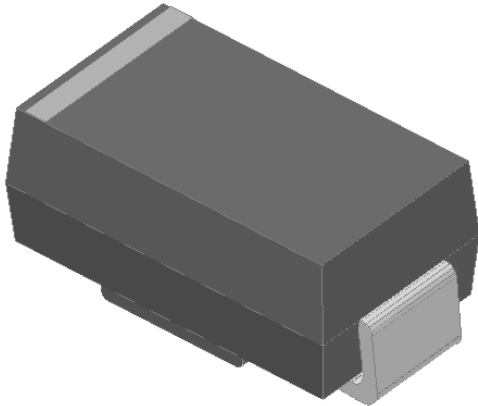


Surface Mount Super Fast Recovery Rectifier

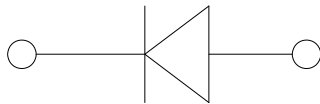


Features

- 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

Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, 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 (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURS120	MURS140	MURS160
Device marking code			MURS120	MURS140	MURS160
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	V	200	400	600
Maximum RMS Voltage	V _{RMS}	V	140	280	420
Maximum DC blocking Voltage	V _{DC}	V	200	400	600
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, T _j =25°C	I _{FSM}	A	30		
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, T _j =25°C			60		
Current squared time @1ms≤t≤8.3ms T _j =25°C, Rating of per diode	i ² t	A ² s	3.735		
Typical junction capacitance @Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	C _j	pF	17	15	14
Storage temperature	T _{stg}	°C	-55 ~ +150		
Junction temperature	T _j	°C	-55 ~ +150		



MURS120 THRU MURS160

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MURS120	MURS140	MURS160
Maximum instantaneous forward voltage drop per diode	V_F	V	$I_{FM}=1.0A$	0.92	1.25	
Maximum reverse recovery time	T_{RR}	ns	$I_F=0.5A, I_R=1.0A, I_{rr}=0.25A$	25	50	
Maximum DC reverse current at rated DC blocking voltage per diode	I_R	μA	$T_j=25^\circ C$	5.0		
			$T_j=125^\circ C$	50		

■ Dynamic Characteristics

◆ MURS120

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	$T_j=25^\circ C$	$I_F=1A, di/dt=-50A/us$ $V_{RM}=30V$	-	28	-
			$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=100V$	-	19	-
			$T_j=125^\circ C$		-	25	-
Peak recovery current	I_{RRM}	A	$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=100V$	-	2.6	-
			$T_j=125^\circ C$		-	4.0	-
Reverse recovery charge	Q_{rr}	nC	$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=100V$	-	24.6	-
			$T_j=125^\circ C$		-	52.3	-
Non-repetitive avalanche energy	E_{AS}	mJ	$T_j=25^\circ C$	$I_R=1.4A, L=15mH$	14.7	-	-

◆ MURS140

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	$T_j=25^\circ C$	$I_F=1A, di/dt=-50A/us$ $V_{RM}=30V$	-	26	-
			$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=200V$	-	22	-
			$T_j=125^\circ C$		-	31	-
Peak recovery current	I_{RRM}	A	$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=200V$	-	1.9	-
			$T_j=125^\circ C$		-	3.5	-
Reverse recovery charge	Q_{rr}	nC	$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=200V$	-	21.1	-
			$T_j=125^\circ C$		-	54.9	-
Non-repetitive avalanche energy	E_{AS}	mJ	$T_j=25^\circ C$	$I_R=0.4A, L=15mH$	1.2	-	-

◆ MURS160

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	$T_j=25^\circ C$	$I_F=1A, di/dt=-50A/us$ $V_{RM}=30V$	-	49	-
			$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=400V$	-	38	-
			$T_j=125^\circ C$		-	59	-
Peak recovery current	I_{RRM}	A	$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=400V$	-	3.5	-
			$T_j=125^\circ C$		-	5.5	-
Reverse recovery charge	Q_{rr}	nC	$T_j=25^\circ C$	$I_F=1A$ $di/dt=-200A/us$ $V_{RM}=400V$	-	67.4	-
			$T_j=125^\circ C$		-	160.5	-
Non-repetitive avalanche energy	E_{AS}	mJ	$T_j=25^\circ C$	$I_R=0.5A, L=15mH$	1.9	-	-



MURS120 THRU MURS160

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

PARAMETER	SYMBOL	UNIT	MURS120	MURS140	MURS160
Typical Thermal resistance	R θ J-A ⁽¹⁾	°C/W	70		
	R θ J-L ⁽¹⁾		22		
	R θ J-C ⁽¹⁾		20		

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: Io-TL Curve

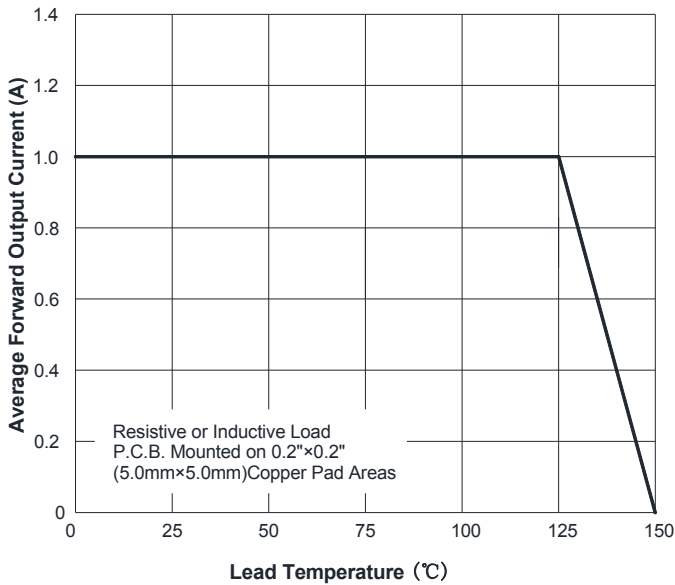


FIG.2: Forward Surge Current Capability

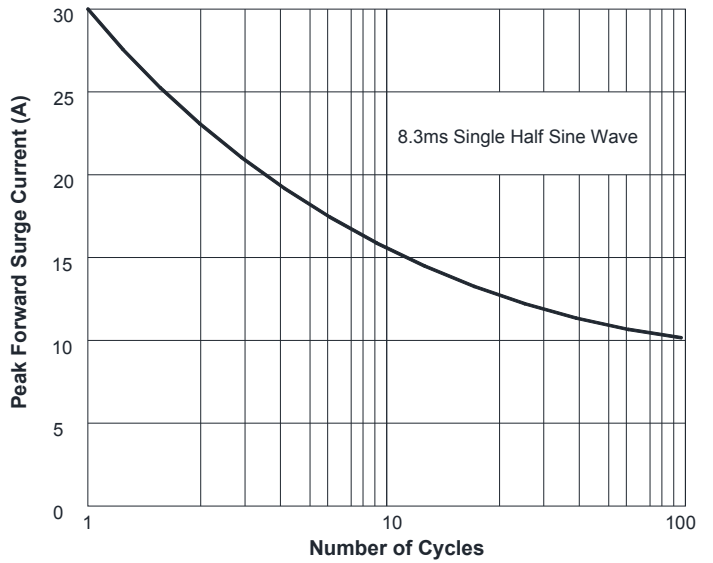


FIG.3: Typical Forward Voltage

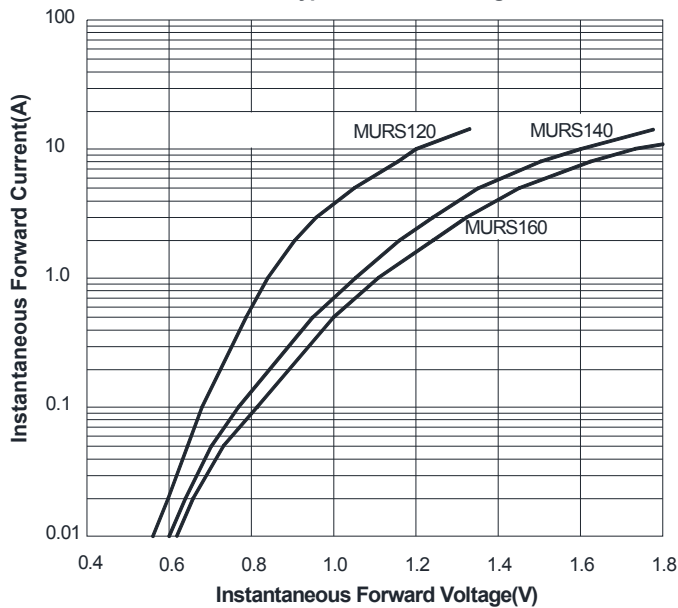


FIG.4: Typical Reverse Characteristics

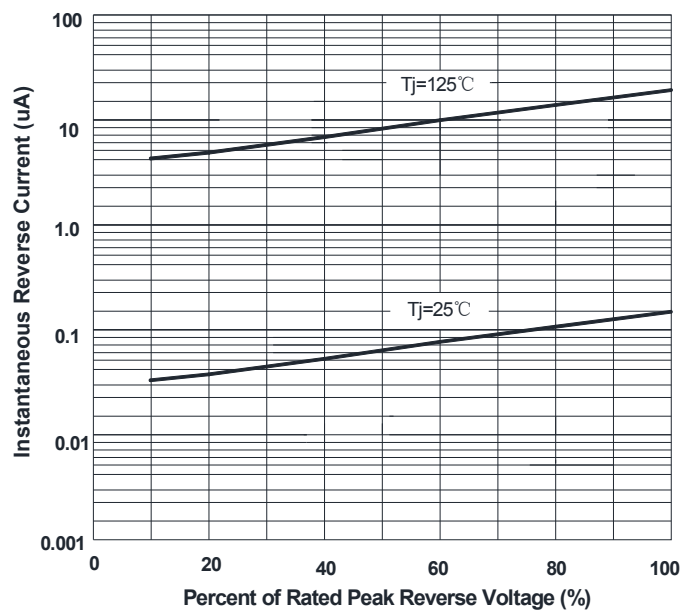
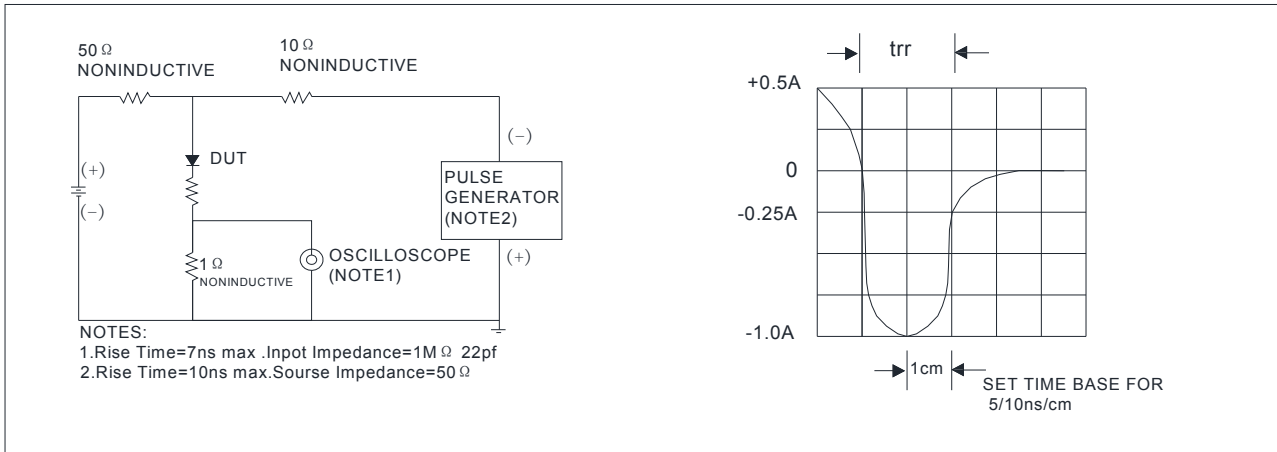


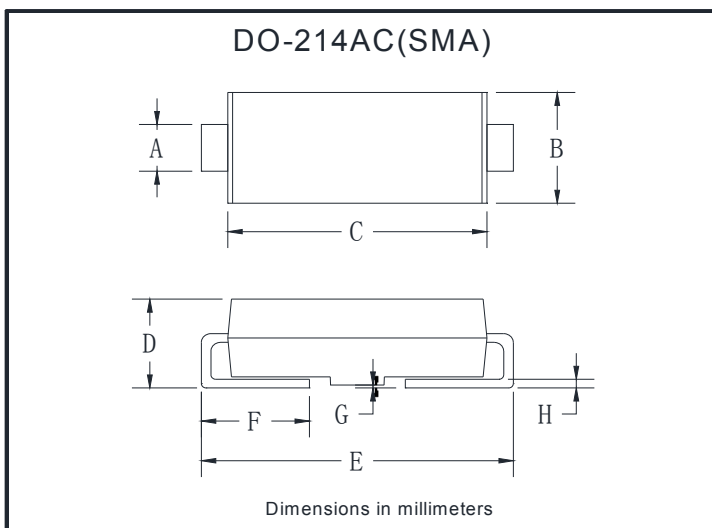
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MURS120-MURS160	F1	Approximate 0.059	5000	10000	80000	13" reel
MURS120-MURS160	F2	Approximate 0.059	7500	15000	120000	13" reel
MURS120-MURS160	F3	Approximate 0.059	7500	15000	60000	13" reel
MURS120-MURS160	F4	Approximate 0.059	1800	14400	57600	7" reel
MURS120-MURS160	F5	Approximate 0.059	2000	16000	64000	7" reel
MURS120-MURS160	F6	Approximate 0.059	5000	10000	100000	13" reel

Outline Dimensions

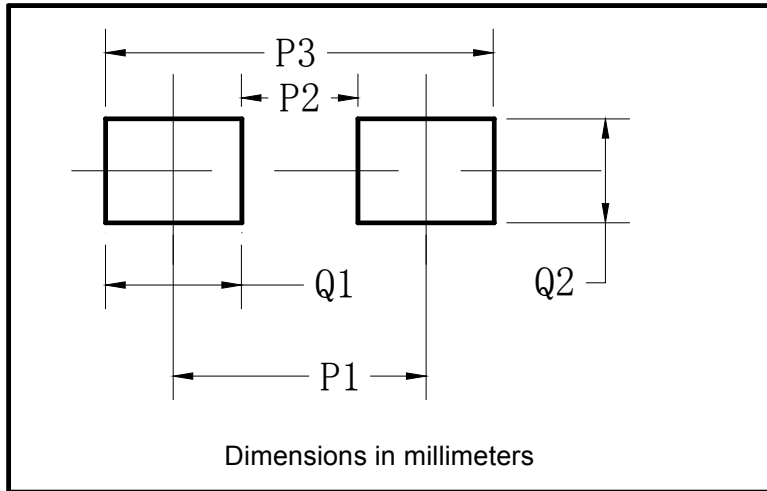


DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.06	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.08	0.20
H	0.15	0.31



MURS120 THRU MURS160

■Suggested Pad Layout



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



MURS120 THRU MURS160

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