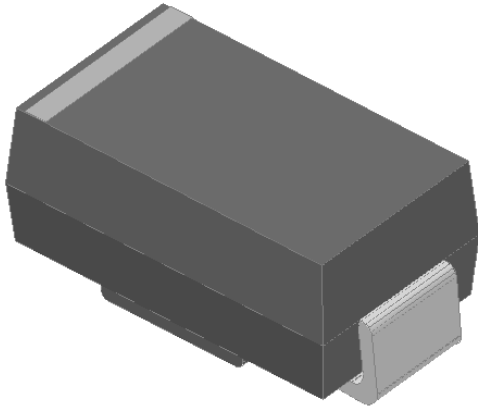


Surface Mount Super Fast Recovery Rectifier

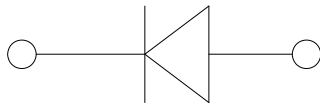


Features

- 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 (Ta=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, Tj=25°C	I_{FSM}	A	30		
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25°C			60		
Current squared time @1ms≤t≤8.3ms Tj=25°C	I^2t	A ² s	3.735		
Storage temperature	T_{stg}	°C	-55 ~ +150		
Junction temperature	Tj	°C	-55 ~ +150		

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MURS120	MURS140	MURS160
Maximum instantaneous forward voltage	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	I _R	μA	T _j =25°C	5.0		
			T _j =125°C	50		
Typical junction capacitance	C _j	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	17	15	14



MURS120 THRU MURS160

■Dynamic Characteristics

◆ MURS120

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

◆ MURS140

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

◆ MURS160

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

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

PARAMETER	SYMBOL	UNIT	MURS120	MURS140	MURS160
Typical Thermal resistance	$R_{\theta J-A}^{(1)}$	$^{\circ}\text{C/W}$	70		
	$R_{\theta J-L}^{(1)}$		22		
	$R_{\theta J-C}^{(1)}$		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



MURS120 THRU MURS160

■ Characteristics (Typical)

FIG.1: I_o -TL Curve

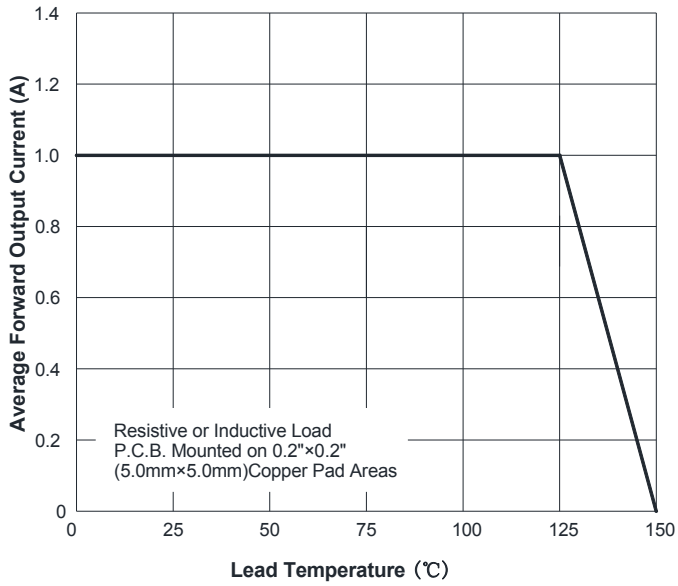


FIG.2: Forward Surge Current Capability

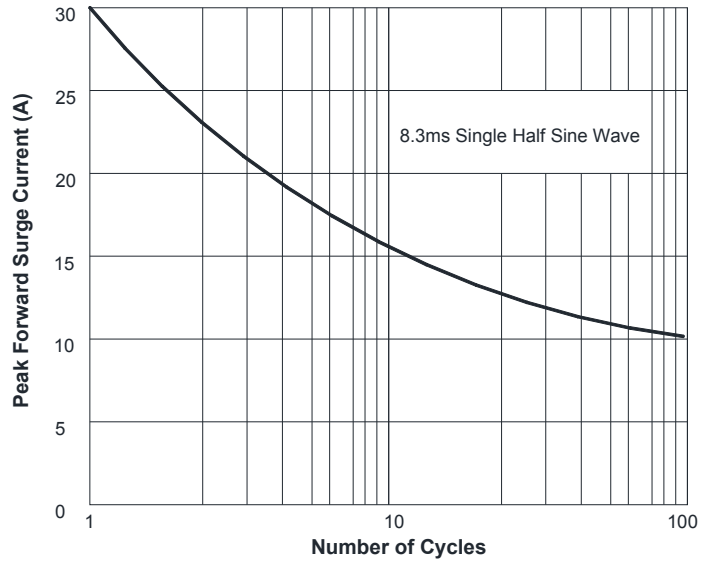


FIG.3: Typical Forward Voltage

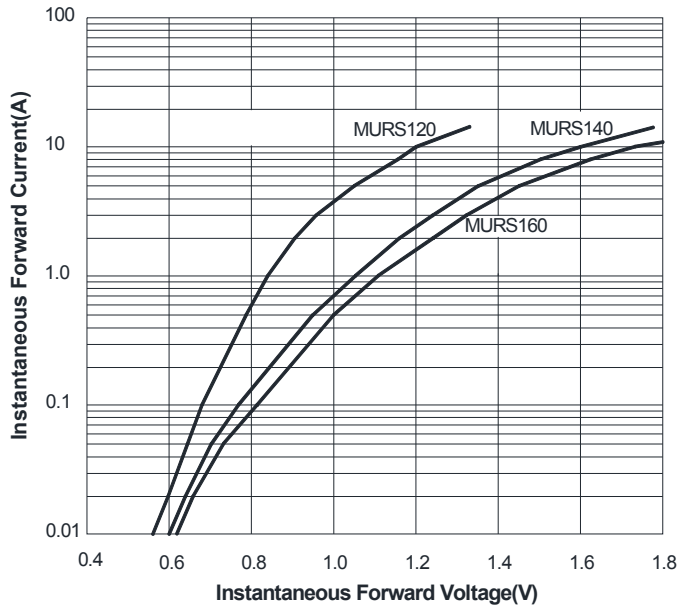


FIG.4: Typical Reverse Characteristics

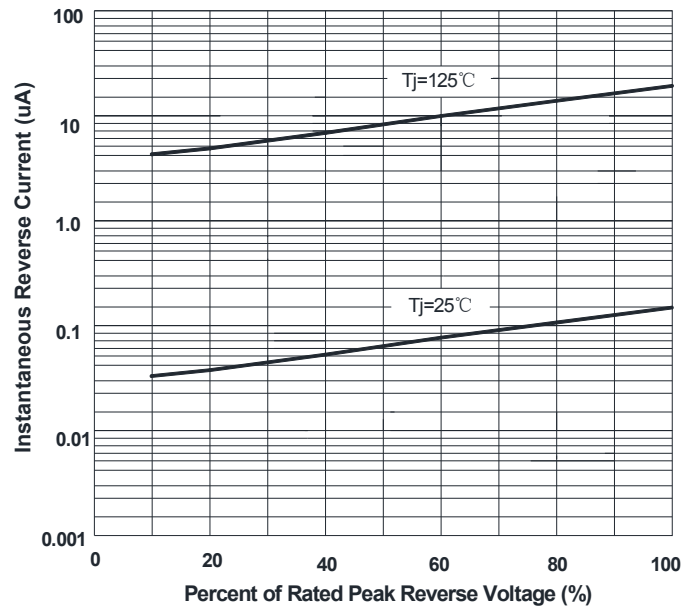
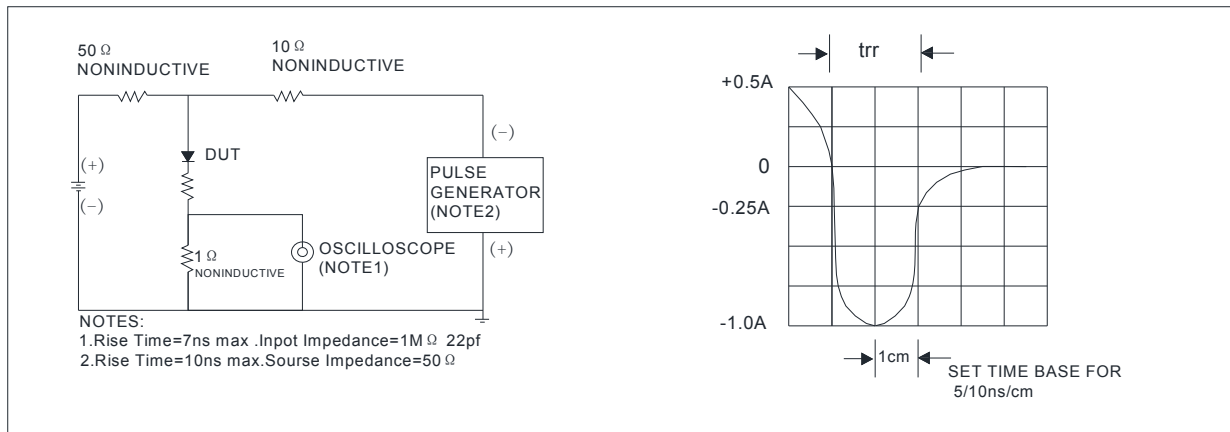


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



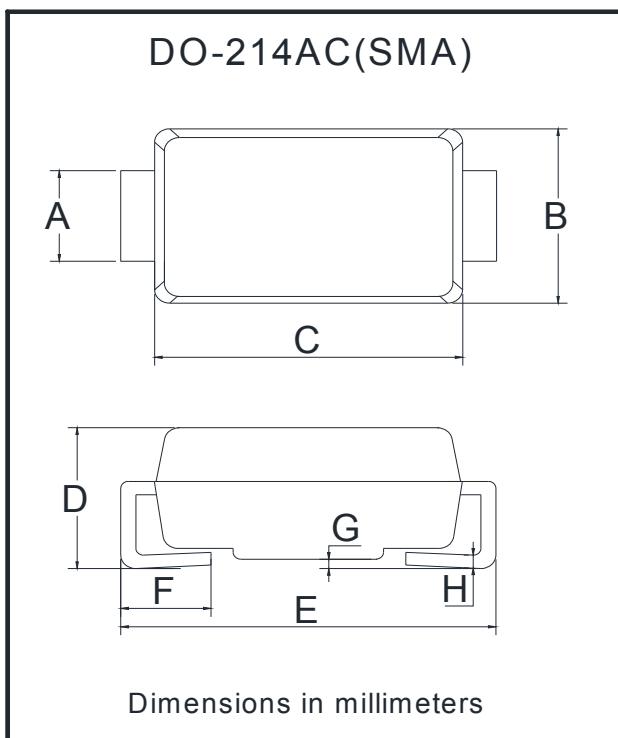


MURS120 THRU MURS160

■ Ordering Information (Example)

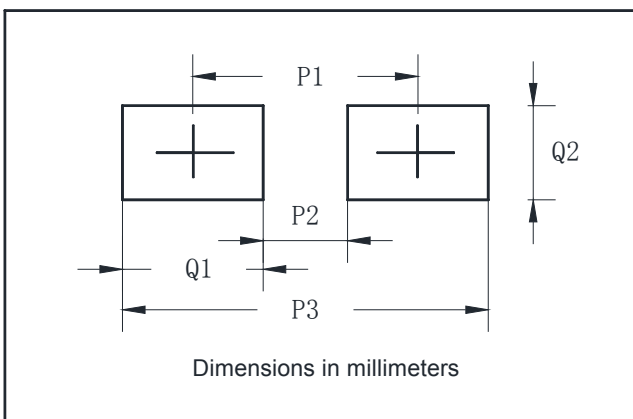
PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MURS120-MURS160	F1	Approximate 0.059	5000	/	80000	13" reel
MURS120-MURS160	F2	Approximate 0.059	7500	/	120000	13" reel
MURS120-MURS160	F3	Approximate 0.059	7500	/	60000	13" 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	/	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

■ Suggested Pad Layout



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



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