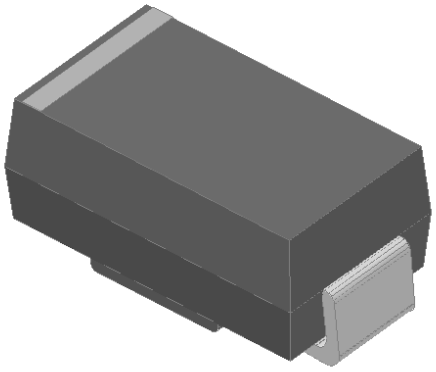
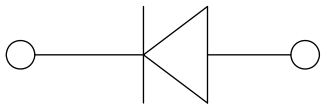
Surface Mount Super Fast Recovery Rectifier
MURS120 Through MURS160

DO-214AC(SMA)





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

ELECTRICAL CHARACTERISTICS (Ta=25℃ 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	Tj =25℃	5.0		
			Tj =125℃	50		
Typical junction capacitance	Cj	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	17	15	14

■ MURS120

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

■ MURS140

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

■ MURS160

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

■ THERMAL CHARACTERISTICS (T_a=25℃ Unless otherwise specified）

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

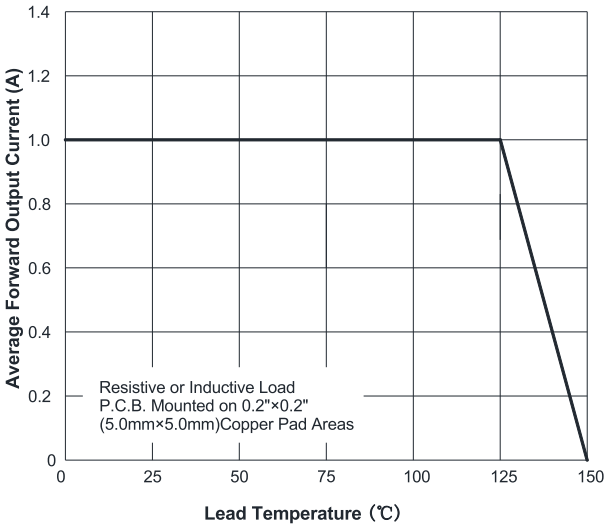


FIG.2: Forward Surge Current Capadility

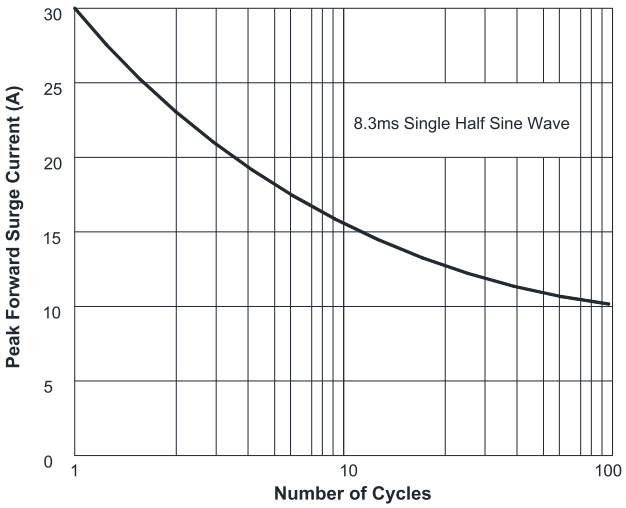


FIG.3: Typical Forward Voltage

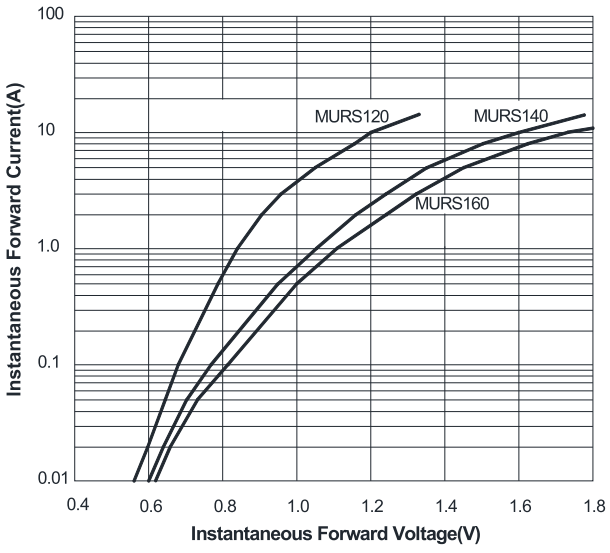


FIG.4: Typical Reverse Characteristics

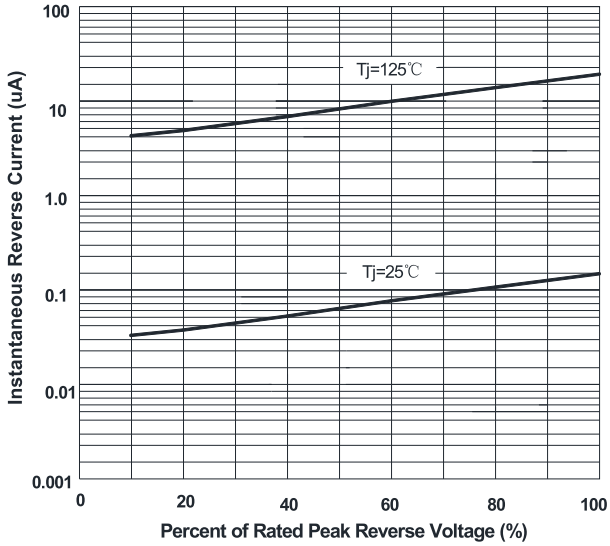
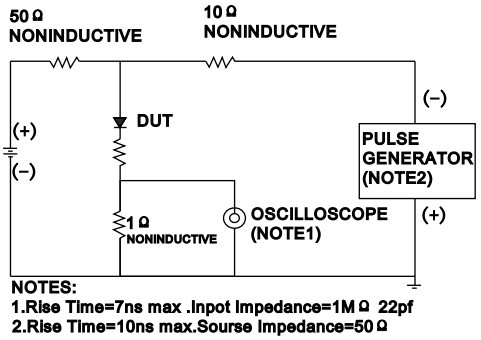
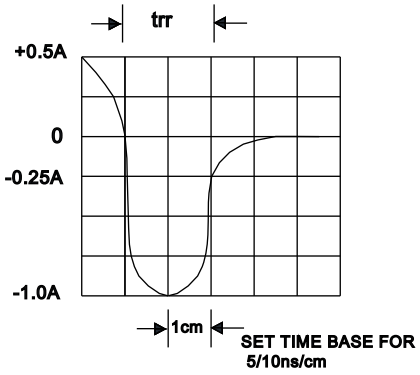


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

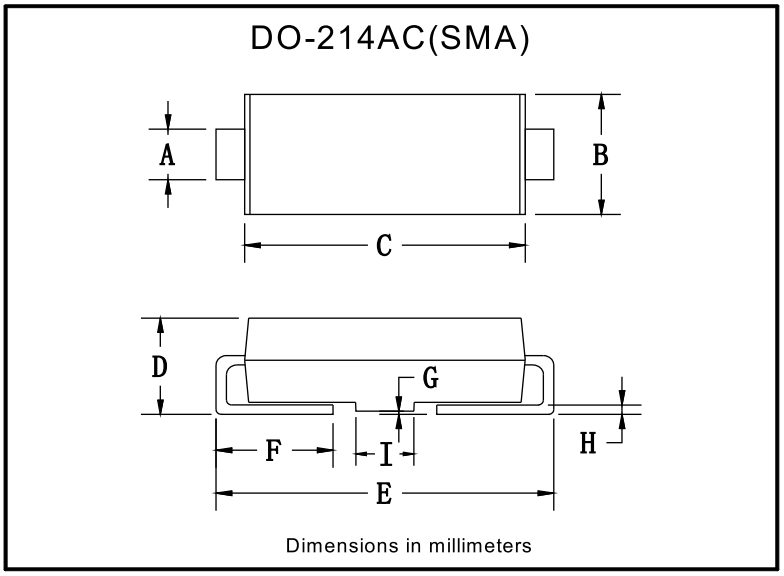




■ PACKAGING INFORMATION

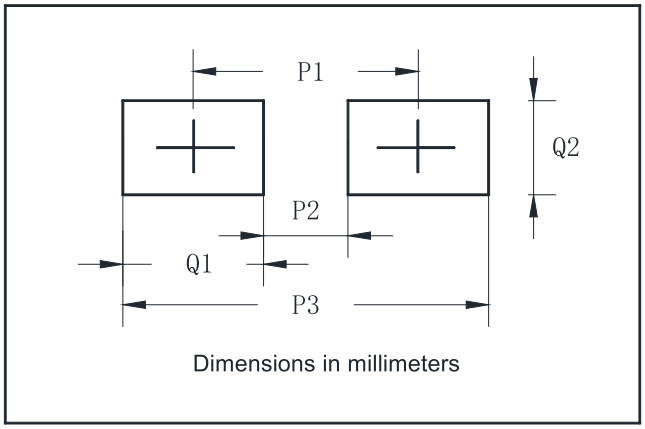
PREFERED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MURS120-MURS160	F1	Approximate 0.059	5000	/	80000	13” reel
MURS120-MURS160	F2	Approximate 0.059	7500	/	120000	13” reel
MURS120-MURS160	F3	Approximate 0.059	7500	/	60000	13” reel
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	4.00	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	1.70	2.10

■ SUGGESTED PAD LAYOUT



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