

Surface Mount Ultrafast Rectifier Diode



Features

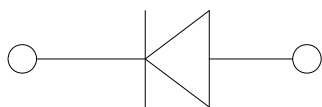
- Ultrafast reverse recovery time
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 260 °C max. 10 s, per JESD 22-B106

Typical Applications

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

Mechanical Data

- **Package:** DO-214AB (SMC)
- Molding compound meets UL 94 V-0 flammability rating, -compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Color band denotes the cathode end



■Maximum Ratings (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURS460
Device marking code			MURS460
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	V	600
Maximum RMS Voltage	V _{RMS}	V	420
Maximum DC blocking Voltage	V _{DC}	V	600
Average Rectified Output Current @60Hz sine wave, Resistance load, TL (FIG.1)	I _O	A	4.0
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, T _j =25°C	I _{FSM}	A	100
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, T _j =25°C			200
Current squared time @1ms≤t≤8.3ms T _j =25°C	I ² t	A ² s	41.5
Storage Temperature	T _{stg}	°C	-55 ~ +150
Junction Temperature	T _j	°C	-55 ~ +150

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MURS460
Maximum instantaneous forward voltage	V _F	V	I _{FM} =4.0A	1.25
Maximum reverse recovery time	t _{rr}	ns	I _F =0.5A, I _R =1.0A, I _{rr} =0.25A	50
Maximum DC reverse current at rated DC blocking voltage	I _R	μA	T _j =25°C	5
			T _j =125°C	50
Typical junction capacitance	C _j	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	50

Dynamic Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	$T_j=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-50\text{A}/\mu\text{s}$ $V_{RM}=30\text{V}$	-	49	-
			$T_j=25^{\circ}\text{C}$	$I_F=4\text{A}$ $di/dt=-200\text{A}/\mu\text{s}$ $V_{RM}=400\text{V}$	-	50	-
			$T_j=125^{\circ}\text{C}$		-	77	-
Peak recovery current	I_{RRM}	A	$T_j=25^{\circ}\text{C}$		-	6.6	-
			$T_j=125^{\circ}\text{C}$		-	10.0	-
Reverse recovery charge	Q_{rr}	nC	$T_j=25^{\circ}\text{C}$		-	167.8	-
			$T_j=125^{\circ}\text{C}$		-	382.1	-
Non-repetitive avalanche energy	E_{AS}	mJ	$T_j=25^{\circ}\text{C}$	$I_R=0.8\text{A}$, $L=15\text{mH}$	4.8	-	-

Thermal Characteristics ($T_a=25^{\circ}\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURS460
Typical Thermal resistance	$R_{\theta JA}^{(1)}$	$^{\circ}\text{C}/\text{W}$	50
	$R_{\theta JL}^{(1)}$		18
	$R_{\theta JC}^{(1)}$		12

Note(1)

Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.6" x 0.6" (16 mm x 16 mm) copper pad areas

Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MURS460	F1	Approximate 0.248	3000	/	42000	13" reel

Characteristics(Typical)

FIG.1: I_o -TL Curve

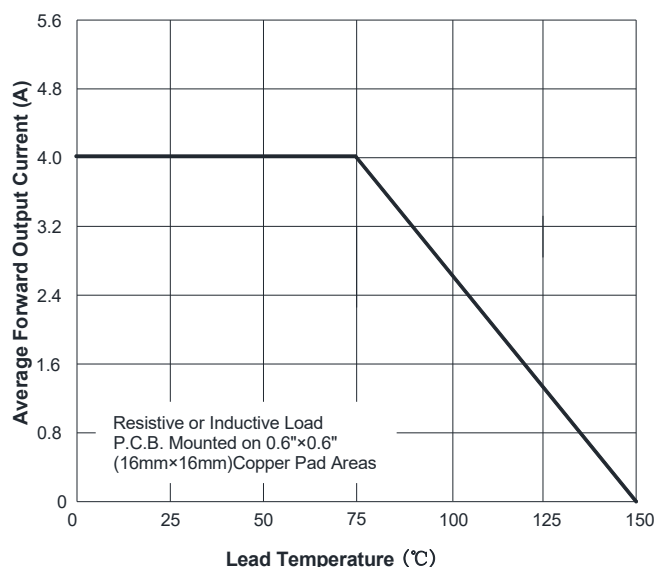


FIG.2: Forward Surge Current Capability

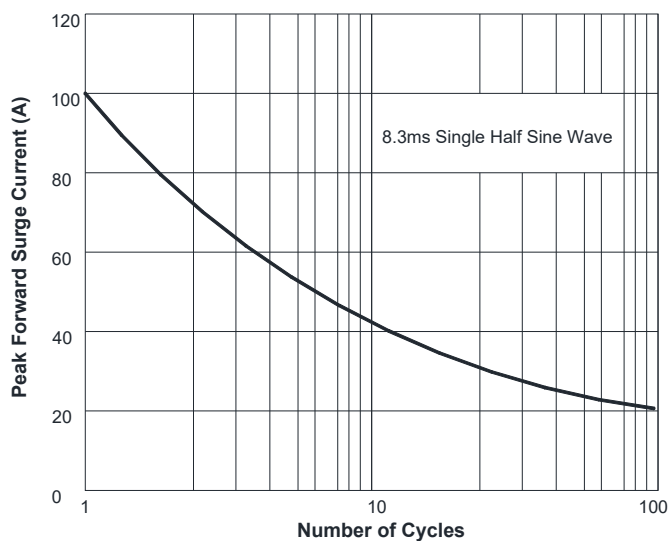


FIG.3: Typical Forward Voltage

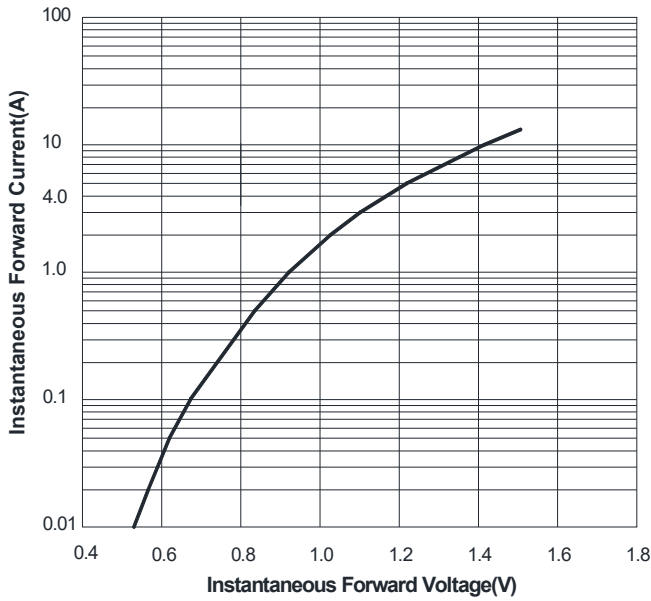


FIG.4: Typical Reverse Characteristics

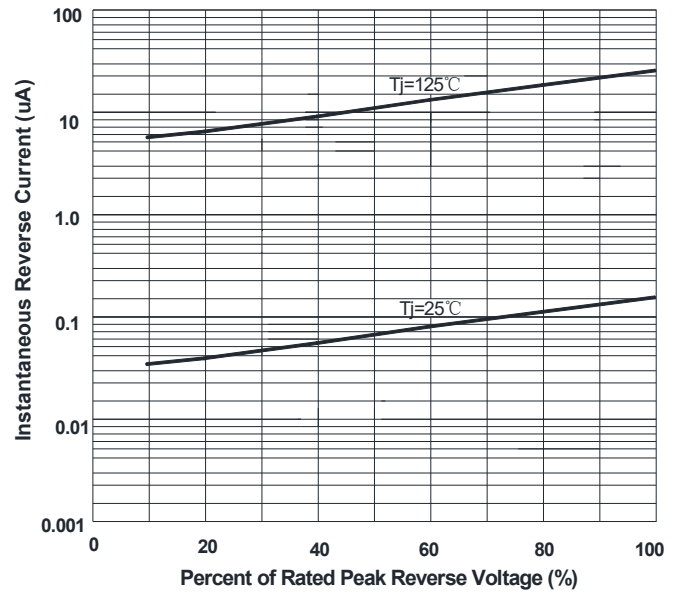
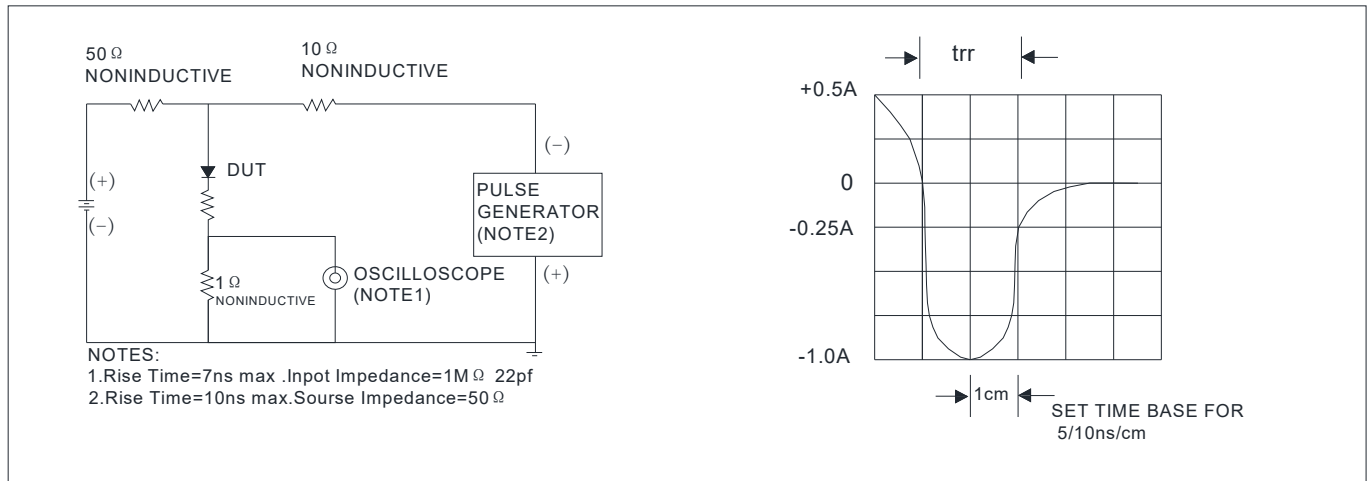
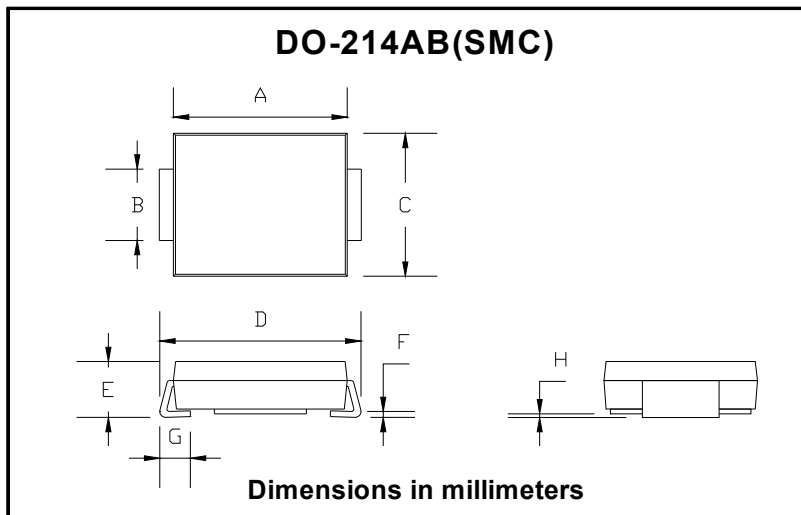


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

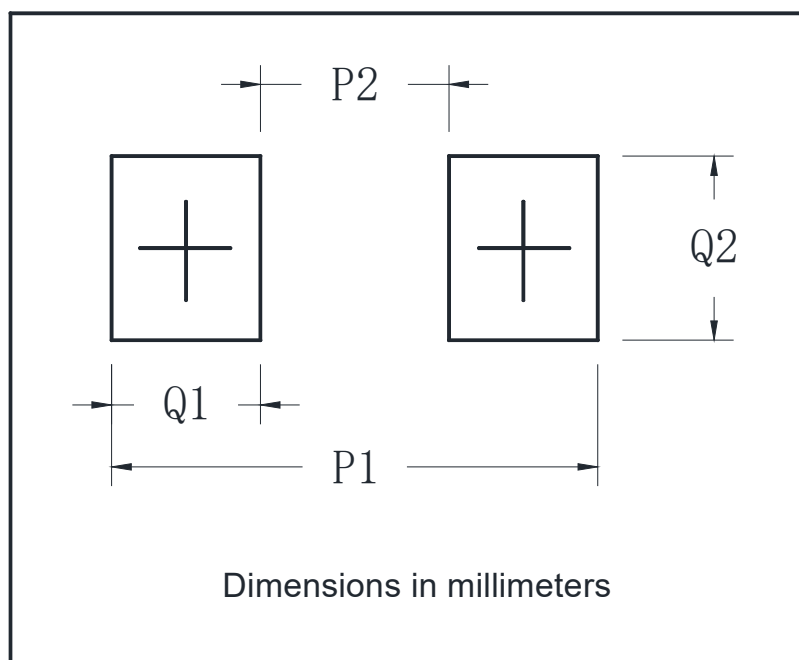


■ Outline Dimensions



DO-214AB (SMC)		
Dim	Min	Max
A	6.60	7.11
B	2.85	3.27
C	5.59	6.22
D	7.75	8.13
E	1.99	2.61
F	0.15	0.31
G	0.76	1.52
H	0.05	0.20

■ Suggested pad layout



DO-214AB (SMC)	
Dim	Min
P1	9.9
P2	3.84
Q1	3.03
Q2	3.82

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