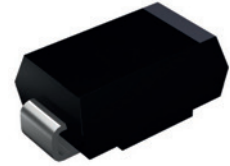


Features

- 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



DO-214AC (SMA)



Schematic Diagram

Mechanical Data

- Package: DO-214AC (SMA)
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminal: 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 noted)

Parameter	Symbol	GSMURS120A	GSMURS140A	GSMURS160A	Unit
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	200	400	600	V
Maximum RMS Voltage	V _{RMS}	140	280	420	V
Maximum DC Blocking Voltage	V _{DC}	200	400	600	V
Average Rectified Output Current @ 60Hz Sine Wave, Resistance Load, T _L (Fig.1)	I _o	1			A
Forward Surge Current (Non-Repetitive) @ 60Hz Half-Sine Wave, 1 Cycle, T _J =25°C	I _{FSM}	30			A
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	I ² t	3.735			A ² s
Typical Thermal Resistance, Junction to Ambient ¹	R _{θJA}	70			°C/W
Typical Thermal Resistance, Junction to Lead ¹	R _{θJL}	22			
Typical Thermal Resistance, Junction to Case ¹	R _{θJC}	20			
Storage Temperature	T _{stg}	-55 to +150			°C
Junction Temperature	T _J	-55 to +150			°C

Notes:

1. Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0mm x 5.0mm) copper pad areas.

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	GSMURS120A	GSMURS140A	GSMURS160A	Unit
Maximum Instantaneous Forward Voltage	V _F	I _{FM} =1.0A	0.92	1.25		V
Maximum Reverse Recovery Time	T _{RR}	I _F =0.5A, I _R =1.0A, I _{rr} =0.25A	25	50		ns
Maximum DC Reverse Current at Rated DC Blocking Voltage	I _R	T _J =25°C	5			μA
		T _J =125°C	50			
Typical Junction Capacitance	C _J	Measured at 1MHz and Applied Reverse Voltage of 4.0V.D.C	17	15	14	pF

GSMURS120A thru GSMURS160A

Surface Mount Super Fast Rectifiers
 Reverse Voltage 200V to 600V Forward Current 1.0A

Dynamic Characteristics (GSMURS120A)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Reverse Recovery Time	T_{RR}	$T_J=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-50\text{A}/\mu\text{s}$, $V_{RM}=30\text{V}$	-	28	-	ns
		$T_J=25^{\circ}\text{C}$		-	19	-	
		$T_J=125^{\circ}\text{C}$		-	25	-	
Peak Recovery Current	I_{RRM}	$T_J=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-200\text{A}/\mu\text{s}$ $V_{RM}=100\text{V}$	-	2.6	-	A
		$T_J=125^{\circ}\text{C}$		-	4	-	
Reverse Recovery Charge	Q_{rr}	$T_J=25^{\circ}\text{C}$		-	24.6	-	nC
		$T_J=125^{\circ}\text{C}$		-	52.3	-	
Non-Repetitive Avalanche Energy	E_{AS}	$T_J=25^{\circ}\text{C}$	$I_R=1.4\text{A}$, $L=15\text{mH}$	14.7	-	-	mJ

Dynamic Characteristics (GSMURS140A)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Reverse Recovery Time	T_{RR}	$T_J=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-50\text{A}/\mu\text{s}$, $V_{RM}=30\text{V}$	-	26	-	ns
		$T_J=25^{\circ}\text{C}$		-	22	-	
		$T_J=125^{\circ}\text{C}$		-	31	-	
Peak Recovery Current	I_{RRM}	$T_J=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-200\text{A}/\mu\text{s}$ $V_{RM}=200\text{V}$	-	1.9	-	A
		$T_J=125^{\circ}\text{C}$		-	3.5	-	
Reverse Recovery Charge	Q_{rr}	$T_J=25^{\circ}\text{C}$		-	21.1	-	nC
		$T_J=125^{\circ}\text{C}$		-	54.9	-	
Non-Repetitive Avalanche Energy	E_{AS}	$T_J=25^{\circ}\text{C}$	$I_R=0.4\text{A}$, $L=15\text{mH}$	1.2	-	-	mJ

Dynamic Characteristics (GSMURS160A)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Reverse Recovery Time	T_{RR}	$T_J=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-50\text{A}/\mu\text{s}$, $V_{RM}=30\text{V}$	-	49	-	ns
		$T_J=25^{\circ}\text{C}$		-	38	-	
		$T_J=125^{\circ}\text{C}$		-	59	-	
Peak Recovery Current	I_{RRM}	$T_J=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-200\text{A}/\mu\text{s}$ $V_{RM}=400\text{V}$	-	3.5	-	A
		$T_J=125^{\circ}\text{C}$		-	5.5	-	
Reverse Recovery Charge	Q_{rr}	$T_J=25^{\circ}\text{C}$		-	67.4	-	nC
		$T_J=125^{\circ}\text{C}$		-	160.5	-	
Non-Repetitive Avalanche Energy	E_{AS}	$T_J=25^{\circ}\text{C}$	$I_R=0.5\text{A}$, $L=15\text{mH}$	1.9	-	-	mJ

Typical Characteristics Curves

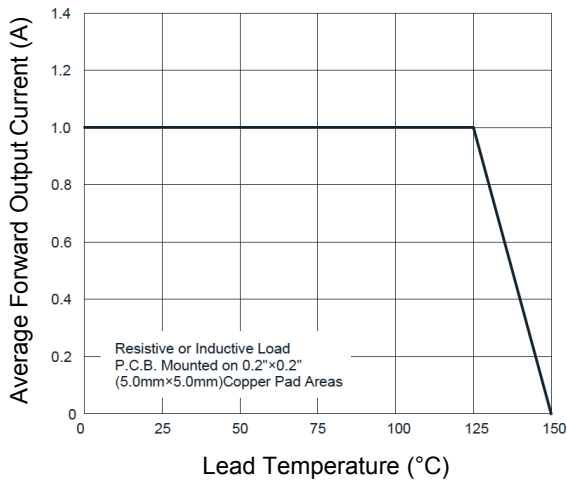


Figure 1. I_o - T_L Curve

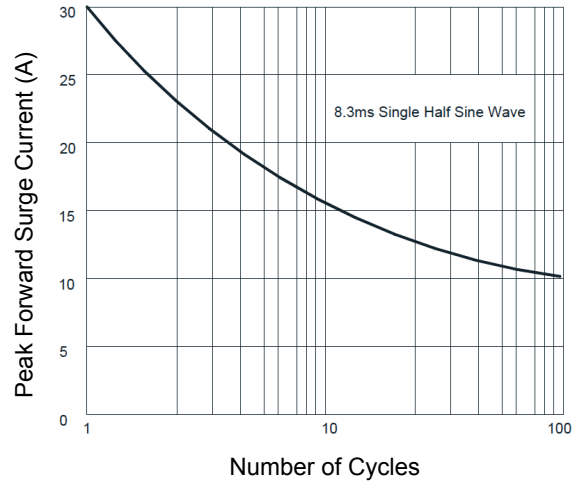


Figure 2. Forward Surge Current Capability

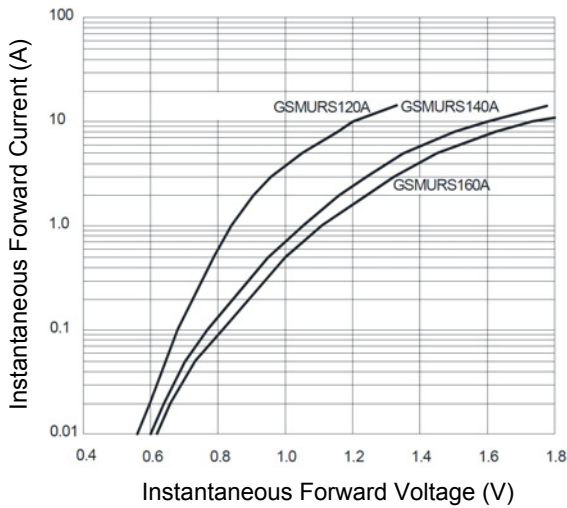


Figure 3. Typical Forward Voltage

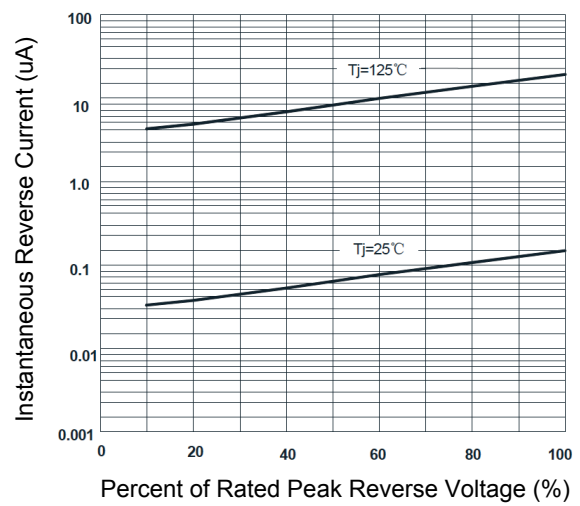
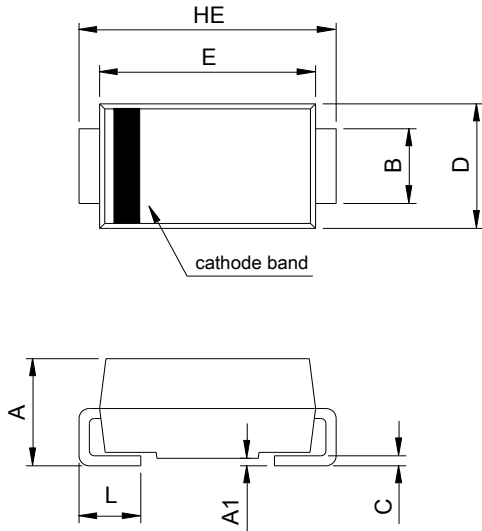


Figure 4. Typical Reverse Characteristics

GSMURS120A thru GSMURS160A

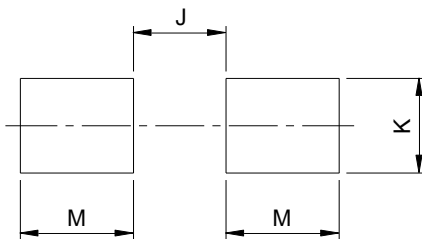
Surface Mount Super Fast Rectifiers
 Reverse Voltage 200V to 600V Forward Current 1.0A

Package Outline Dimensions DO-214AC (SMA)



SMA (DO-214AC)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.90	2.30	0.075	0.091
A1	0.00	0.20	0.000	0.008
B	1.25	1.65	0.049	0.065
C	0.15	0.31	0.006	0.012
D	2.35	2.90	0.093	0.114
E	3.99	4.60	0.157	0.181
HE	4.80	5.30	0.189	0.209
L	0.76	1.52	0.030	0.060

Recommended Pad Layout



Recommended Pad Layout (Reference ONLY)				
DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	-	2.20	-	0.087
K	1.72	-	0.068	-
M	2.00	-	0.079	-

Order Information

Device	Package	Marking	Carrier	Quantity
GSMURS120A	DO-214AC (SMA)	MURS120A	Tape & Reel	7,500 pcs / Reel
GSMURS140A	DO-214AC (SMA)	MURS140A	Tape & Reel	7,500 pcs / Reel
GSMURS160A	DO-214AC (SMA)	MURS160A	Tape & Reel	7,500 pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com