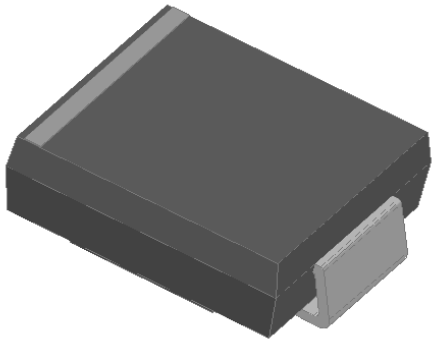
Surface Mount Fast Recovery Rectifier Diode

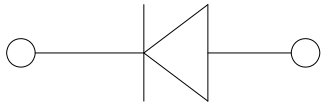


Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Part no. with suffix “Q” means AEC-Q101 qualified

Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, automotive and telecommunication.



Mechanical Data

- **Package:** DO-214AB (SMC)

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:** Color band denotes the cathode end

■Maximum Ratings (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	GR3AQ	GR3BQ	GR3DQ	GR3GQ	GR3JQ	GR3KQ	GR3MQ
Device marking code			GR3A	GR3B	GR3D	GR3G	GR3J	GR3K	GR3M
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	V	50	100	200	400	600	800	1000
Maximum RMS Voltage	V_{RMS}	V	35	70	140	280	420	560	700
Maximum DC blocking Voltage	V_{DC}	V	50	100	200	400	600	800	1000
Average Rectified Output Current @60Hz sine wave, Resistance load, TL (FIG.1)	I_O	A	3.0						
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, Tj=25℃	I_{FSM}	A	100						
Storage temperature	T_{stg}	℃	-55 ~ +150						
Junction temperature	T_j	℃	-55 ~ +150						

■Electrical Characteristics (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	GR3AQ	GR3BQ	GR3DQ	GR3GQ	GR3JQ	GR3KQ	GR3MQ
Maximum instantaneous forward voltage	V_F	V	I_{FM}=3.0A	1.3						
Maximum reverse recovery time	t_{rr}	ns	I_F=0.5A, I_R=1.0A, I_{rr}=0.25A	150				250	500	
Maximum DC reverse current at rated DC blocking voltage	I_R	μA	T_j=25℃	5						
			T_j=125℃	100						
Typical junction capacitance	C_j	pF	V_R=4V, f=1 MHz	45				40	25	

■Thermal Characteristics （T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	GR3AQ	GR3BQ	GR3DQ	GR3GQ	GR3JQ	GR3KQ	GR3MQ
Typical Thermal Resistance	$R_{\theta J-A}$(1)	℃/W	65						
	$R_{\theta J-L}$(1)		15						

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

■Ordering Information (Example)

PREFERED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
GR3AQ~GR3MQ	F1	Approximate 0.253	3000	42000	13” reel

■ Characteristics(Typical)

Fig.1:Forward Current Derating Curve

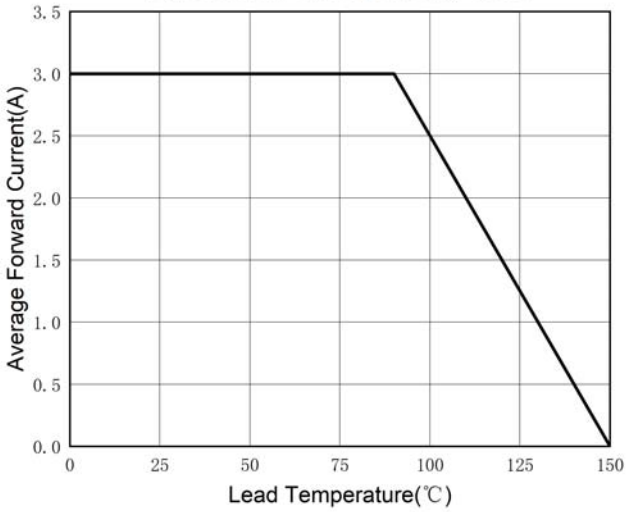


Fig.2: Forward Surge Current Capability

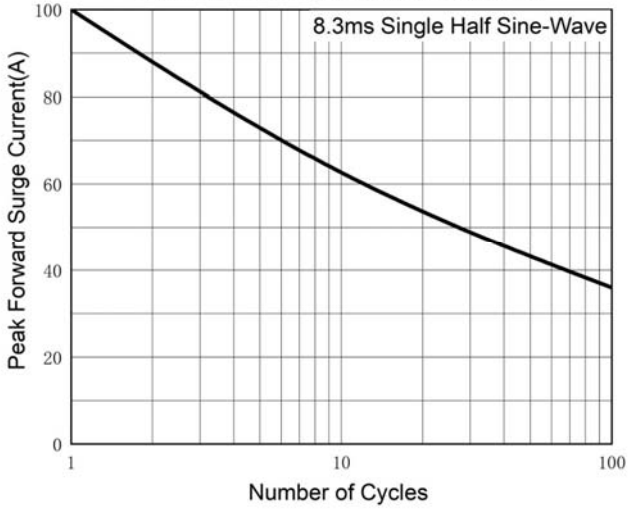


Fig.3:Typical Instantaneous Forward Characteristics

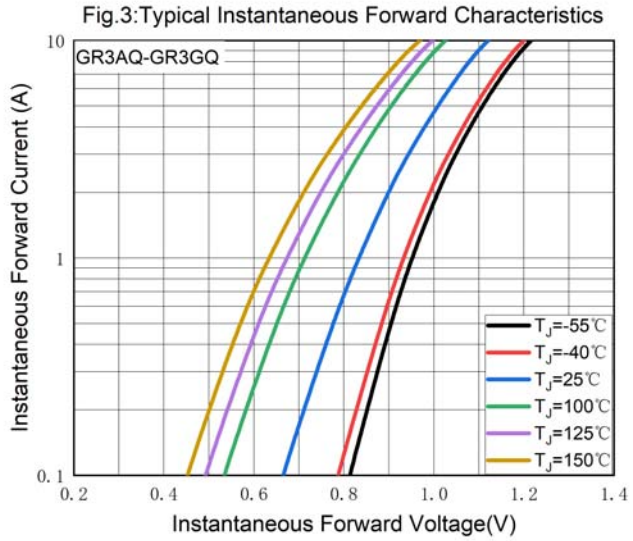


Fig.4:Typical Reverse Leakage Characteristics

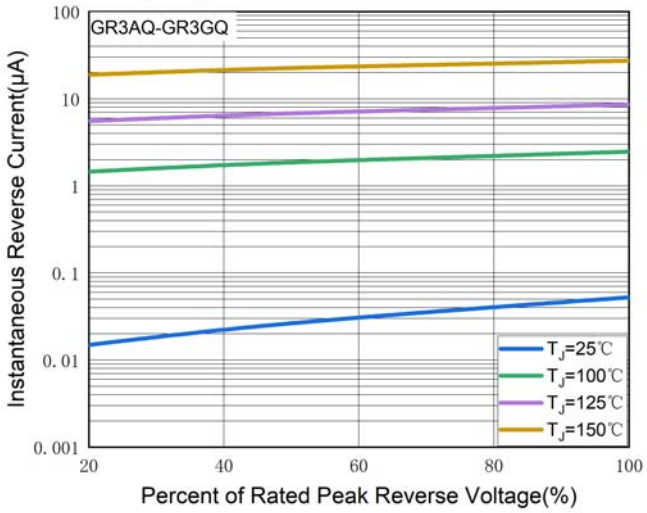


Fig.5:Typical Instantaneous Forward Characteristics

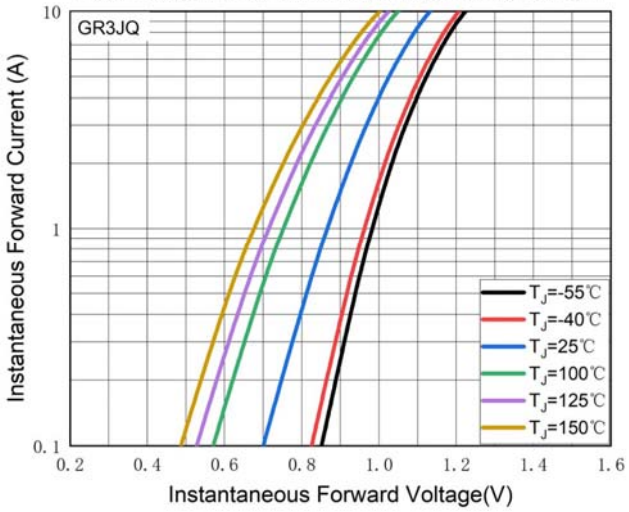


Fig.6:Typical Reverse Leakage Characteristics

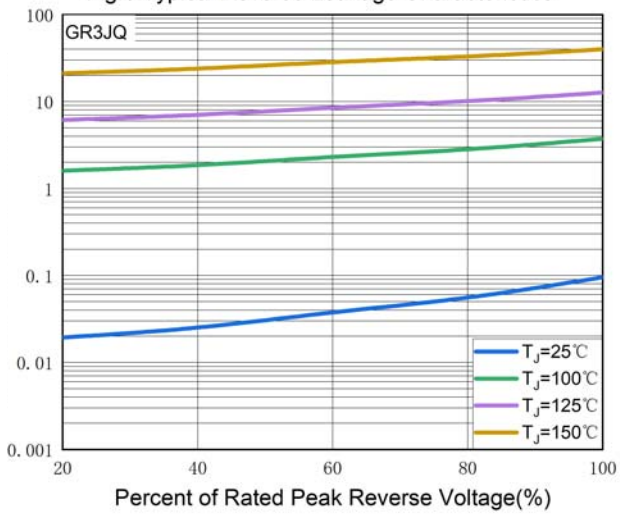
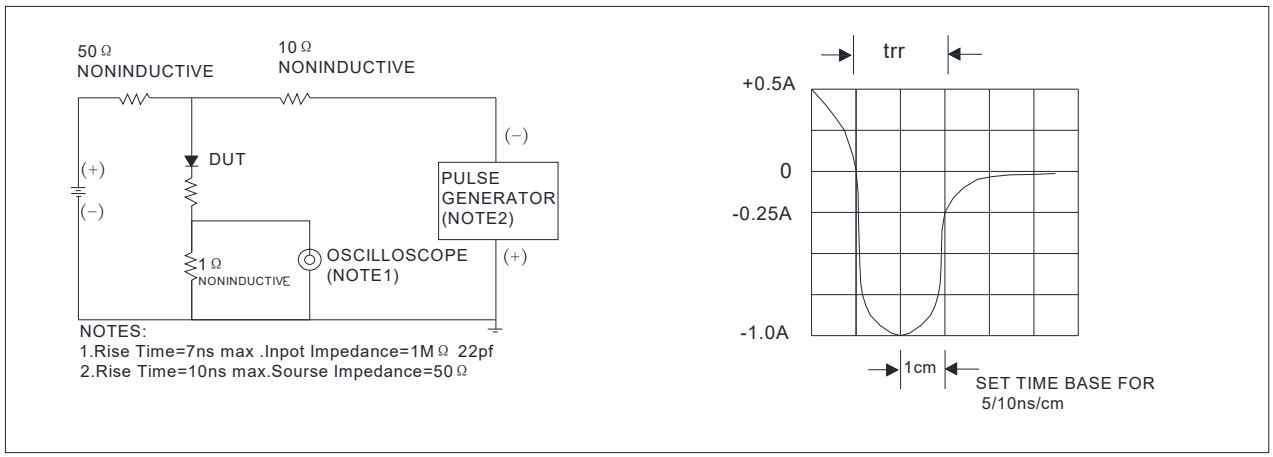
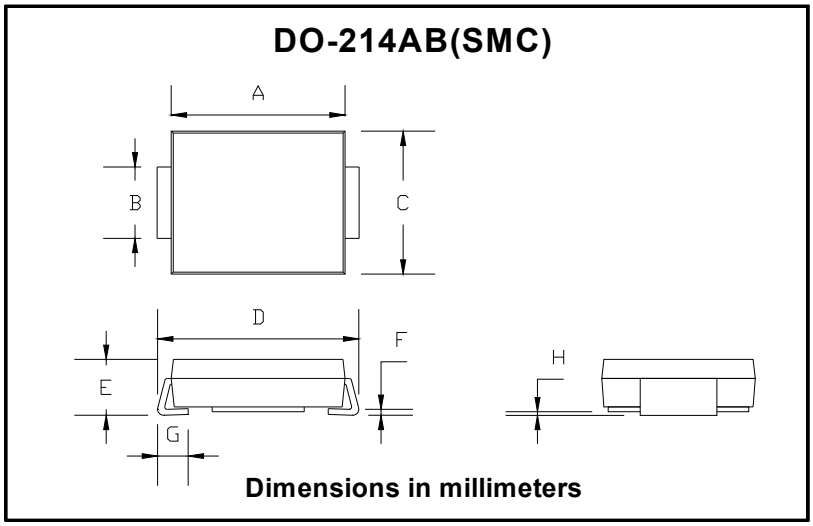


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

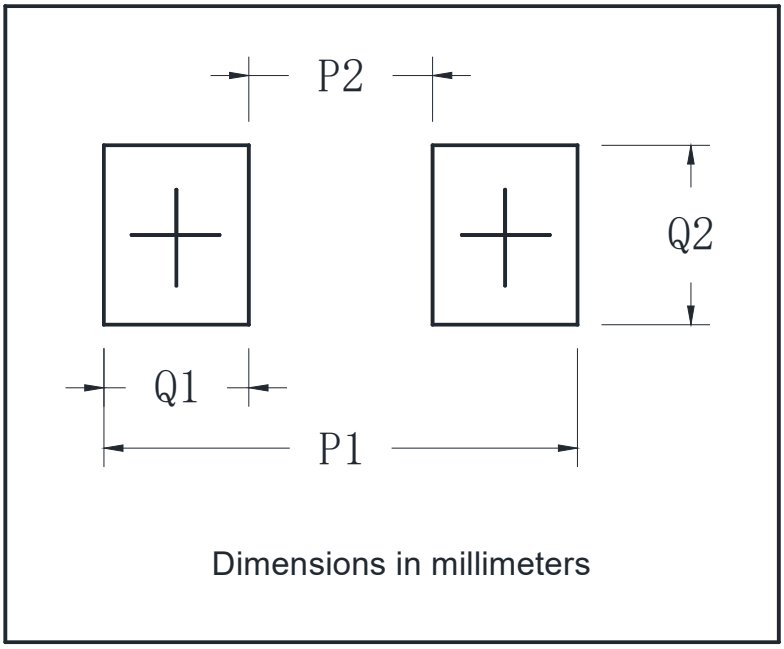


■ Outline Dimensions



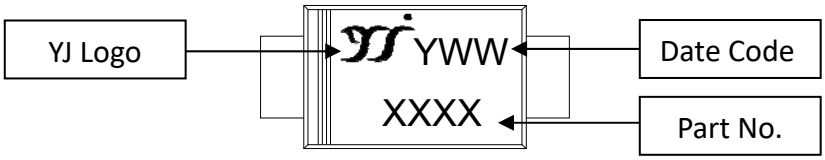
DO-214AB (SMC)		
Dim	Min	Max
A	6.60	7.11
B	2.85	3.27
C	5.59	6.22
D	7.75	8.13
E	1.99	2.61
F	0.15	0.31
G	0.76	1.52
H	0.05	0.20

■ Suggested pad layout



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

■ Marking Information



Note:
1. All marking is at middle of the product body
2. All marking is in laser printing
3. XXXX is marking code, like GR3MQ marking code is GR3M.
4. Body color: Black
5. YWW is date code, “Y” is year. “WW” is week.
For instance:
The 17th week of 2024, date code is 417
The 17th week of 2025, date code is 517

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