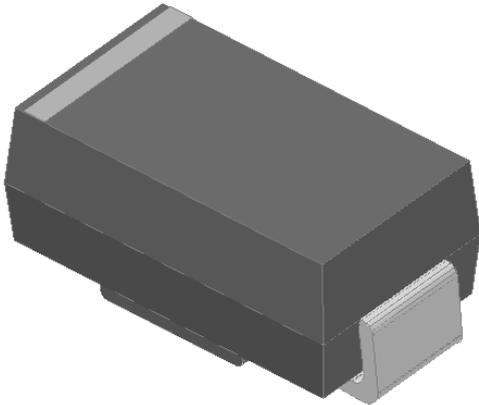


## Surface Mount Fast Recovery Rectifier

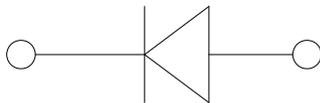


### Features

- 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

### Typical Applications

For use in fast switching 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 (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	GR1Q
Device marking code			GR1Q
Maximum Repetitive Peak Reverse Voltage	VRRM	V	1200
Maximum RMS Voltage	VRMS	V	840
Maximum DC blocking Voltage	VDC	V	1200
Average rectified output current @60Hz sine wave, Resistance load, TL (FIG.1)	I <sub>O</sub>	A	1.0
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, T <sub>j</sub> =25°C	I <sub>FSM</sub>	A	30
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, T <sub>j</sub> =25°C			60
Current squared time @1ms≤t≤8.3ms T <sub>j</sub> =25°C	I <sup>2</sup> t	A <sup>2</sup> s	3.7
Storage temperature	T <sub>stg</sub>	°C	-55 ~ +150
Junction temperature	T <sub>j</sub>	°C	-55 ~ +150

### ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	GR1Q
Maximum instantaneous forward voltage	V <sub>F</sub>	V	I <sub>FM</sub> =1.0A	1.3
Maximum reverse recovery time	t <sub>r</sub>	ns	I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>r</sub> =0.25A	250
Maximum DC reverse current at rated DC blocking voltage	I <sub>R</sub>	μA	T <sub>j</sub> =25°C	5
			T <sub>j</sub> =125°C	100
Typical junction capacitance	C <sub>j</sub>	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	8



# GR1Q

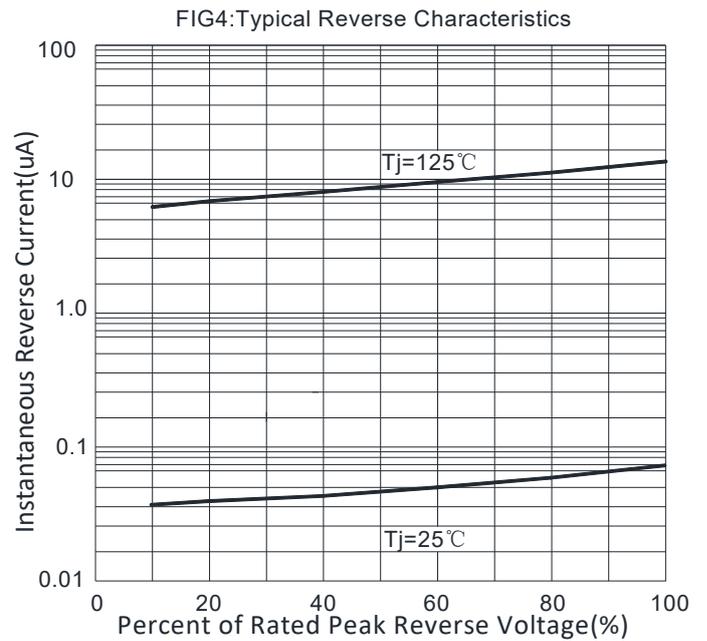
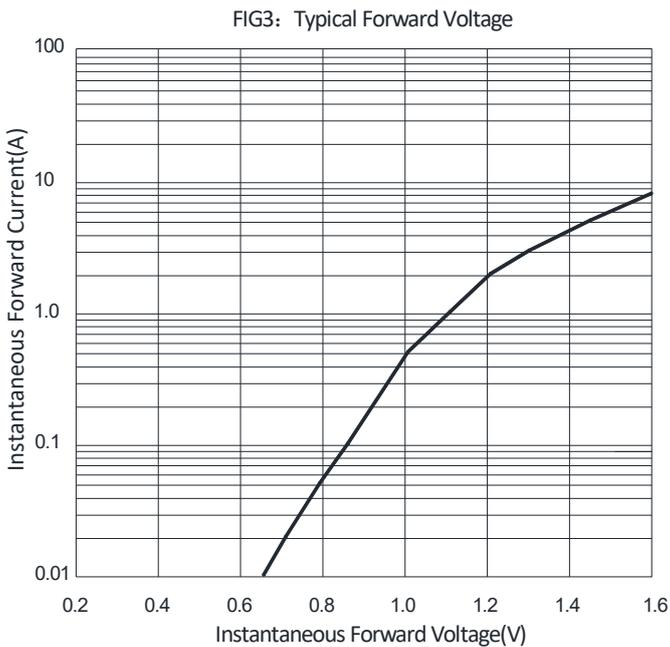
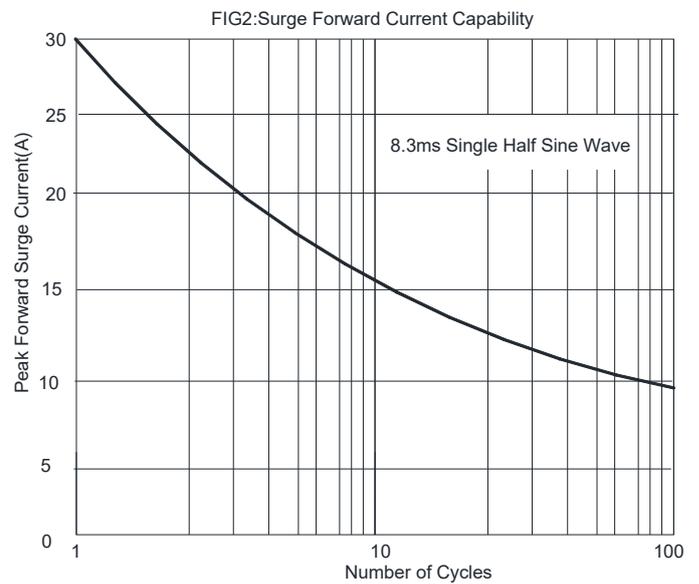
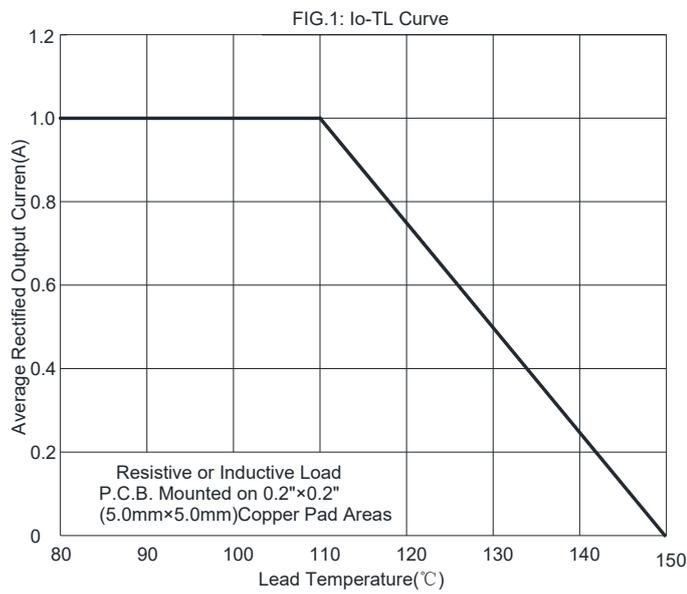
## ■ Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	GR1Q
Typical Thermal Resistance	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	90
	R <sub>θJ-L</sub> <sup>(1)</sup>		34
	R <sub>θJ-C</sub> <sup>(1)</sup>		18

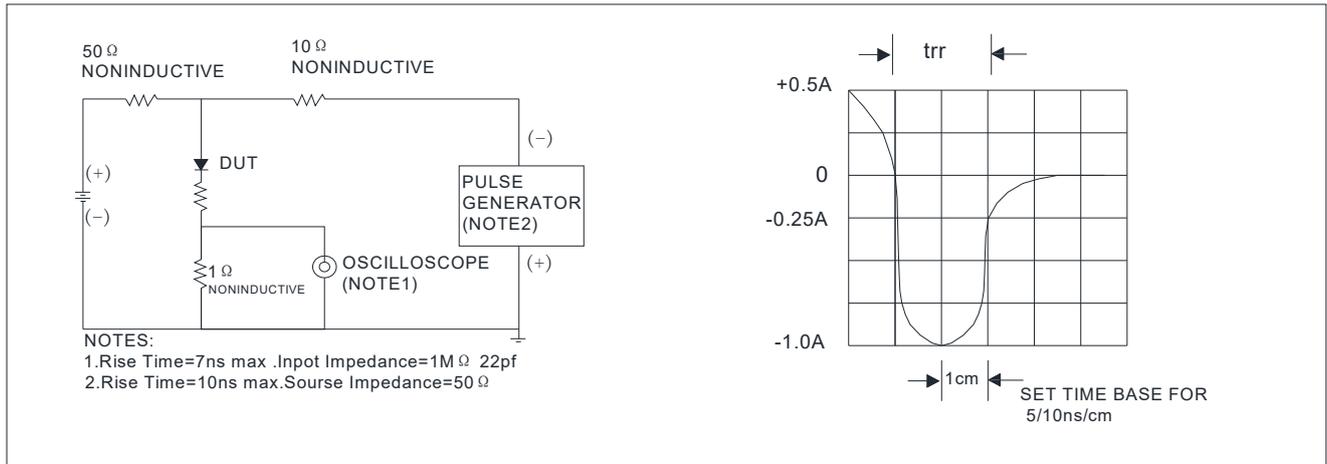
Note

(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)



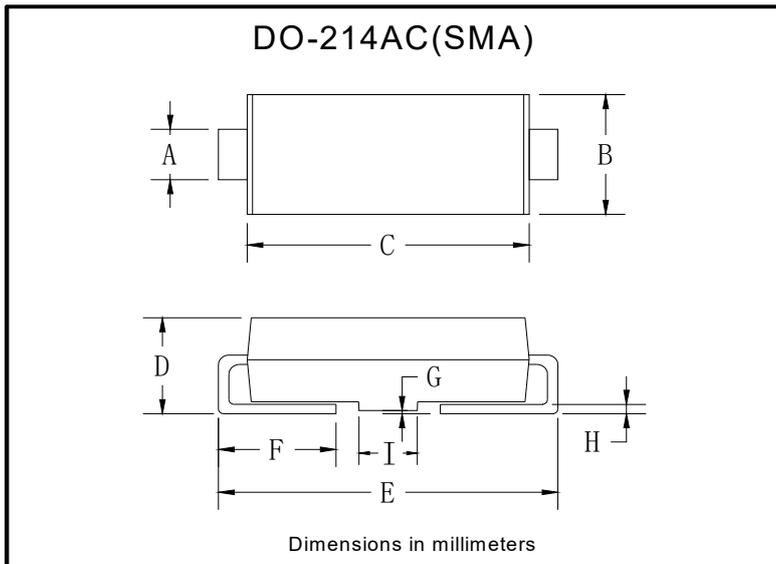
**FIG.5: Diagram of circuit and Testing wave form of reverse recovery time**



### Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
GR1Q	F1	Approximate 0.059	5000	/	80000	13" reel
GR1Q	F2	Approximate 0.059	7500	/	120000	13" reel
GR1Q	F3	Approximate 0.059	7500	/	60000	13" reel
GR1Q	F4	Approximate 0.059	1800	14400	57600	7" reel
GR1Q	F5	Approximate 0.059	2000	16000	64000	7" reel
GR1Q	F6	Approximate 0.059	5000	/	100000	13" reel

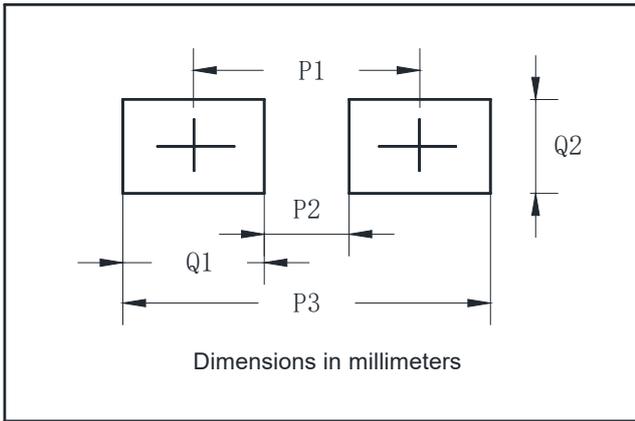
### Outline Dimensions



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



## GR1Q

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