

4A,200-800V Superfast Rectifiers

Features

- Low leakage current
- Low forward voltage drop
- Glass passivated chip junction
- Moisture sensitivity: level 1, per J-STD-020
- Halogen-free according to IEC 61249-2-21 definition
- High temperature soldering guaranteed: 260°C/10 seconds



Applications

For use in secondary rectification and freewheeling for superfast switching speeds of converters in consumer applications.

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

Parameter	Symbol	SGC0403U	SGC0404U	SGC0405U	SGC0406U	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	200	400	600	800	V
Maximum RMS voltage	V _{RMS}	140	280	420	560	V
Maximum DC blocking voltage	V _{DC}	200	400	600	800	V
Maximum average forward rectified current	I _{F(AV)}	4				A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load per diode	I _{FSM}	150				A
Operating junction temperature range	T _J	-55 to +150				°C
Storage temperature range	T _{STG}	-55 to +150				°C

Thermal-Mechanical Specifications (T_A=25°C unless otherwise noted)

Parameter	Symbol	Typ	Unit
Thermal Resistance, Junction to Ambient	R _{θJA}	40	°C /W
Thermal Resistance, Junction to Case	R _{θJC}	15	°C /W
Thermal Resistance, Junction to Lead	R _{θJL}	7	°C /W

Electrical Specifications(T _A =25°C unless otherwise noted)							
Parameter	Symbol	Test Conditions	SGC0403U	SGC0404U	SGC0405U	SGC0406U	Unit
Forward Drop Voltage	V _F	I _F =4A	0.95	1.3	1.7		V
Reverse leakage current @V _R	I _R	T _J =25°C	10				uA
		T _J =125°C	300				
Typical junction capacitance	C _J	4.0 V 1 MHZ	25				pF
Maximum reverse recovery time	trr	I _F =0.5A, I _R =1.0A, I _{RR} =0.25A	35				nS

Note:

1. Mounted on copper pad area of 30 x 30mm to each terminal.

Ratings and Characteristics Curves

($T_A = 25^\circ\text{C}$ unless otherwise noted)

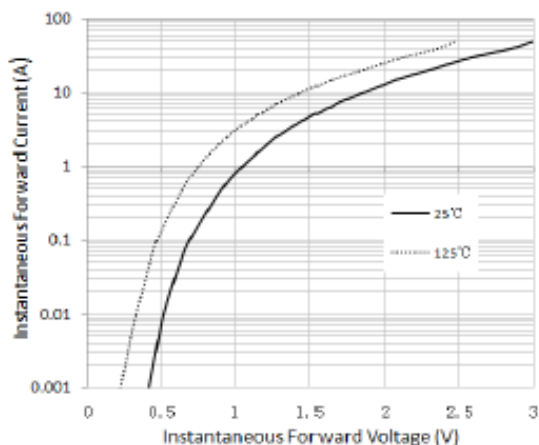


Figure 1. Typical Instantaneous Forward Characteristics

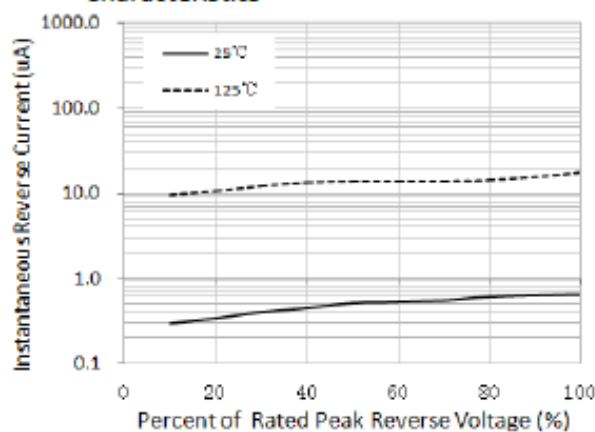


Figure 3. Typical Instantaneous Reverse Characteristics

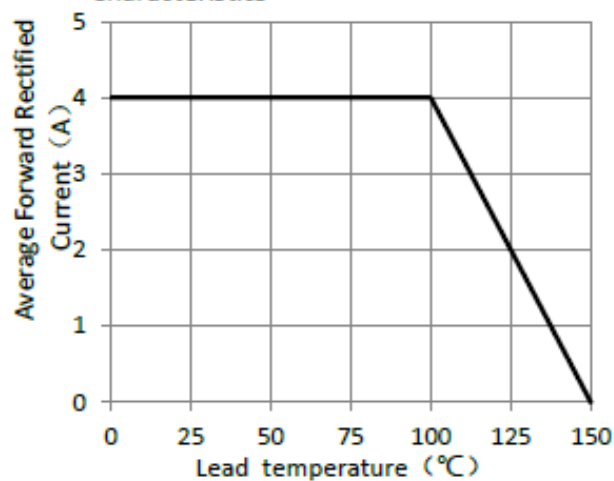


Figure 5. Forward Current Derating Curve

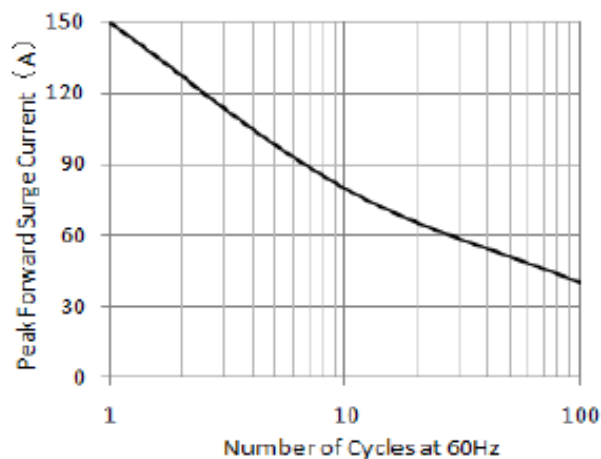


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

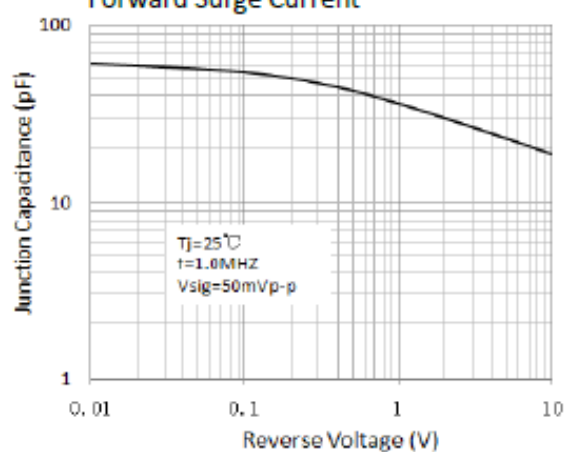
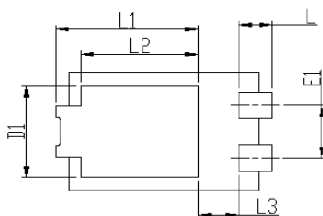
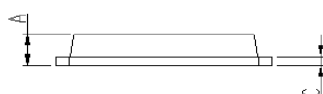
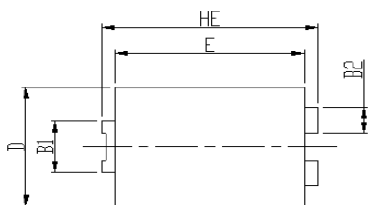


Figure 4. Typical Junction Capacitance

Package Outline Dimensions

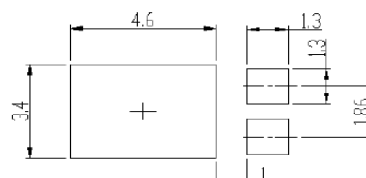
in inches (millimeters)

eSGC (TO-277B)



DIM	Unit: mm		Unit: inch	
	MIN	MAX	MIN	MAX
HE	6.4	6.6	0.252	0.260
E	5.6	5.8	0.220	0.228
D	4.1	4.3	0.161	0.169
B1	1.7	1.9	0.067	0.075
B2	0.8	1	0.031	0.039
A	1.05	1.2	0.041	0.047
C	0.3	0.4	0.012	0.016
L	0.85	1.1	0.033	0.043
L1	4.2	4.4	0.165	0.173
L2	3.52 Typ.		0.139 Typ.	
L3	1.1	1.4	0.043	0.055
D1	3	3.3	0.118	0.130
E1	1.86 Typ.		0.073 Typ.	

Soldering footprint



Revision History

Document Version	Date of release	Description of changes
Rev.A	2021.06.01	Released Datasheet
Rev.B	2023.10.13	Modify document format
Rev.C	2023.12.29	Modify package name

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