

62mA-400mA EOL – Last Buy Date is Jun 30, 2020  
 No replacements for these ratings

# Type GSA / GSAP

## Slow Blow Fuse Series

**HF** **Pb** GSA/GSAP Series, 6x32mm Ceramic Tube Slow Blow Fuse

RoHS 2 Compliant

### Description

6x32mm Slow Blow, ceramic tube body cartridge fuse designed, approved and complied with UL and CSA standard 248-14.

### Features

- Meet UL and CSA standard 248-14
- Wide operating temperature range
- Bulk packing available
- RoHS 2 compliant
- Halogen Free
- Lead Free

### Applications

Provide individual protection for components or internal circuits.

- Power supplies
- Battery charger
- Monitor
- Adapter

LEAD FREE = **Pb**  
 HALOGEN FREE = **HF**



### Physical Specifications

Materials	Body : Ceramic
	Cap : Nickel Plated Brass Caps
	Leads : Matte Tin Plated Copper
Marking	On Fuse :
	"bel", "GSA", "Current Rating", "Voltage Rating", "Appropriate Safety Logos", "✓" ( RoHS 2 compliant )
	On Label :
	"bel", "GSA" or "GSAP", "Current Rating", "Voltage Rating", "Interrupting Rating", "Appropriate Safety Logos" and " <sup>RoHS</sup> ✓ ", "  "(China RoHS compliant).

### Electrical Characteristics (UL/CSA STD.248-14)

Testing Current	Blow Time	
	Minimum	Maximum
100%	4 hrs.	N/A
135%	N/A	1 Hr.
200%	5 sec	30 sec

### Safety Agency Approvals

Safety Agency	Safety Agency Certificate	Voltage Rating (V)	Ampere Range / Volt @ I.R. ability*
 	E20624 LR39772	63mA-15A/ 250V AC	63mA-8A/125V AC @10,000A 63mA-1A/250V AC @35A >1A-3.5A/250V AC @100A >3.5A-8A/250V AC @200A
 			10A-15A/125V AC @10,000A 10A-15A/250V AC @750A
	JET1037-31003-1010 JET1037-31003-1011 JET1037-31003-1007		1A-5A/125V AC @500A >5A-15A/125V AC @300A

\*I.R.= Interrupting Rating = Short Circuit Rating(Amps)

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## Environmental Specifications

Shock Resistance	MIL-STD-202G, Method 213B, Test Condition 1 (100 G's peak for 6 milliseconds; Sawtooth waveform)
Vibration Resistance	MIL-STD-202G, Method 201A (10-55 Hz, 0.06 inch, total excursion).
Salt Spray Resistance	MIL-STD-202G, Method 101E, Test Condition B (48 hrs.).
Insulation Resistance	MIL-STD-202G, Method 302, Test Condition A (After Opening) 10,000 ohms minimum.
Solderability	MIL-STD-202G, Method 208H
Resistance to solder Heat	MIL-STD-202G, Method 210F, Test Condition B. (260+/-5°C, 10+/-1 sec)
Thermal Shock	MIL-STD-202G, Method 107G, Test Condition B (-65°C to +125°C).
Operating Temperature	-55°C to +125°C
Terminal Strength	IEC-68-2-21

## Electrical Specifications

Catalog Number	Ampere Rating	Typical Cold Resistance (ohms)	Volt-drop @100%In (Volt) max.	Voltage and Interrupting Ratings	Melting I <sup>2</sup> T <10 mSec (A <sup>2</sup> Sec)	Melting I <sup>2</sup> T @10 In (A <sup>2</sup> Sec)	Maximum Power Dissipation (W)	Agency Approvals					
								UL US	SP	UL US	SP	CS	
GSA(P) 63-R	63mA	75.5	7.33	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	0.087	0.098	0.71	Y	Y				
GSA(P) 80-R	80mA	48.4	6.27		0.135	0.152	0.74	Y	Y				
GSA(P) 100-R	100mA	29.4	4.41		0.209	0.238	0.55	Y	Y				
GSA(P) 125-R	125mA	17.5	3.45		0.323	0.372	0.58	Y	Y				
GSA(P) 160-R	160mA	12.3	3.13		0.499	0.581	0.60	Y	Y				
GSA(P) 200-R	200mA	7.1	2.13		0.773	0.908	0.63	Y	Y				
GSA(P) 250-R	250mA	5.0	1.97		1.2	1.4	0.66	Y	Y				
GSA(P) 300-R	300mA	3.17	1.52		1.9	2.2	0.70	Y	Y				
GSA(P) 375-R	375mA	2.14	1.26		2.6	3.2	0.73	Y	Y				
GSA(P) 500-R	500mA	1.38	1.07	See Table of Safety Approvals on Page 1 for Voltage and associated Interrupting Ratings	4.4	5.4	0.78	Y	Y				
GSA(P) 600-R	600mA	1.05	0.98		6.9	8.5	0.82	Y	Y				
GSA(P) 700-R	700mA	0.648	0.69		8.5	11	0.84	Y	Y				
GSA(P) 750-R	750mA	0.642	0.68		10	12	0.85	Y	Y				
GSA(P) 1-R	1A	0.374	0.59		16	21	0.91	Y	Y				Y
GSA(P) 1.25-R	1.25A	0.248	0.43		25	32	0.96	Y	Y				Y
GSA(P) 1.6-R	1.6A	0.155	0.38		39	50	1.01	Y	Y				Y
GSA(P) 2-R	2A	0.115	0.36		61	79	1.06	Y	Y				Y
GSA(P) 2.5-R	2.5A	0.079	0.29		94	123	1.12	Y	Y				Y
GSA(P) 3-R	3A	0.058	0.27		146	192	1.18	Y	Y				Y
GSA(P) 4-R	4A	0.039	0.23		226	300	1.24	Y	Y				Y
GSA(P) 5-R	5A	0.029	0.22		349	469	1.31	Y	Y				Y
GSA(P) 6-R	6A	0.018	0.19		286	455	1.61	Y	Y				Y
GSA(P) 7-R	7A	0.016	0.18		372	592	1.81	Y	Y				Y
GSA(P) 8-R	8A	0.013	0.17		483	769	1.95	Y	Y				Y
GSA(P) 10-R	10A	0.010	0.17	817	1300	2.26			Y	Y		Y	
GSA(P) 12-R	12A	0.008	0.15	1277	2031	2.56			Y	Y		Y	
GSA(P) 15-R	15A	0.006	0.15	2123	3377	2.96			Y	Y		Y	

Consult manufacturer for other ratings

EOL—  
 Last Buy Date is  
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Specifications subject to change without notice

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# Type GSA / GSAP

## Temperature Derating Curve



## Average Time Current Curve



## Soldering parameters

Lead-free Wave Soldering Profile	
Wave Soldering Parameter	
Average ramp-up rate	200°C / second
Heating rate during preheat	typical 1 - 2°C / second Max 4°C / second
Final preheat temperature	within 125°C of soldering temperature
Peak temperature $T_p$	260°C
Time within +0°C / -5°C of actual peak temperature	10 seconds
Ramp-down rate	5°C / second max.



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## Fuse FGNO Explanation

06X6 R [XXXX] -XX

0606R=GSA/0616R=GSAP; [XXXX]=Ampere Rating; XX=See Ordering Information as below

Fraction	Decimal	Milliamps	Bel FGNO[XXXX]
1/16	0.063	63	0063
8/100	.080	80	0080
1/10	.100	100	0100
1/8	.125	125	0125
	.160	160	0160
2/10	.200	200	0200
1/4	.250	250	0250
3/10	.300	300	0300
3/8	.375	375	0375
1/2	.500	500	0500
6/10	.600	600	0600
7/10	.700	700	0700
3/4	.750	750	0750

Fraction	Decimal	Amps	Bel FGNO[XXXX]
	1.0	1	1000
1-1/4	1.25	1.25	1250
	1.60	1.6	1600
	2.0	2	2000
2-1/2	2.5	2.5	2500
	3.0	3	3000
	4.0	4	4000
	5.0	5	5000
	6.0	6	6000
	7.0	7	7000
	8.0	8	8000
		10	9100
		12	9120
		15	9150

## Mechanical Dimensions



\*Diameter lead 0.032"±0.002" for 5A and less  
 \*Diameter lead 0.039"±0.002" for 6A and above

## Ordering Information

**06X6 R XXXX - X X**

FUSE TYPE \_\_\_\_\_

0606R = GSA Series

0616R = GSAP Series

R = RoHS Compliant \_\_\_\_\_

AMPERE RATING \_\_\_\_\_

Refer to fuse FGNO explanation table

PACKAGING CODE \_\_\_\_\_

3 = GSA Cartridge, 1K/box

3 = GSAP Pigtail, Bulk, 1K/box

VOLTAGE CODE \_\_\_\_\_

3 = 250V for 100mA -20A

## Packaging

Packaging Option	Packaging Specification	Quantity	Packaging Code	Inside Tape Spacing
Bulk	N/A	1000	33	N/A
Bulk (Pigtail Type)	N/A	1000	33	N/A



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