

## APPLICATIONS

- ✓ Ethernet - 10/100/1000 Base T
- ✓ Cellular Phones
- ✓ Handheld - Wireless Systems
- ✓ Personal Digital Assistant (PDA)
- ✓ USB Interface

## IEC COMPATIBILITY (EN61000-4)

- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns

## FEATURES

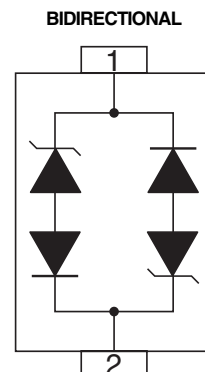
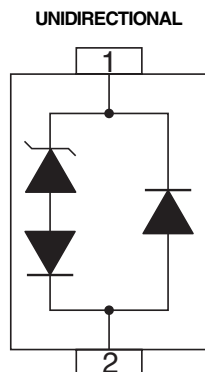
- ✓ 200 Watts Peak Pulse Power per Line ( $t_p=8/20\mu s$ )
- ✓ Unidirectional & Bidirectional Configurations
- ✓ Replacement for MLV (0603)
- ✓ Protects One Power or I/O Port
- ✓ ESD Protection > 40 kilovolts
- ✓ Low Clamping Voltage
- ✓ Available from 3V to 8V
- ✓ ULTRA LOW CAPACITANCE: 1pF Typical
- ✓ RoHS Compliant

## MECHANICAL CHARACTERISTICS

- ✓ Molded EIAJ SC-79 Package
- ✓ Weight 2 milligrams (Approximate)
- ✓ Available Lead-Free Pure-Tin Plating (Annealed)
- ✓ Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- ✓ Consult Factory for Leaded Device Availability
- ✓ Flammability Rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481
- ✓ Device Marking: Marking Code & Polarity Band (Unidirectional Only)



## PIN CONFIGURATIONS



# GBLCSC03 thru GBLCSC08C

## DEVICE CHARACTERISTICS

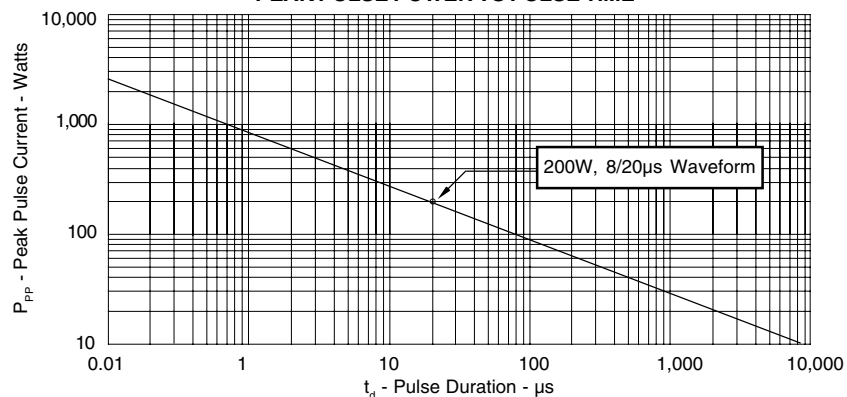
| MAXIMUM RATINGS @ 25°C Unless Otherwise Specified     |           |                |       |
|-------------------------------------------------------|-----------|----------------|-------|
| PARAMETER                                             | SYMBOL    | VALUE          | UNITS |
| Peak Pulse Power ( $t_p = 8/20\mu s$ ) - See Figure 1 | $P_{PP}$  | 200            | Watts |
| Storage Temperature                                   | $T_{STG}$ | -55°C to 150°C | °C    |
| Operating Temperature                                 | $T_A$     | -55°C to 150°C | °C    |

| ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified |                |                                                  |                                                               |                                                                                  |                                                               |                                                   |
|-----------------------------------------------------------------------|----------------|--------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------|
| PART NUMBER<br>(See Note 1 & Note 2)                                  | DEVICE MARKING | RATED STAND-OFF VOLTAGE<br><br>$V_{WM}$<br>VOLTS | MINIMUM BREAKDOWN VOLTAGE<br><br>@ 1mA<br>$V_{(BR)}$<br>VOLTS | MAXIMUM CLAMPING VOLTAGE<br>(See Fig. 2)<br><br>@ 8/20 $\mu s$<br>$V_C @ I_{PP}$ | MAXIMUM LEAKAGE CURRENT<br><br>@ $V_{WM}$<br>$I_D$<br>$\mu A$ | TYPICAL CAPACITANCE<br><br>@ 0V, 1 MHz<br>C<br>pF |
| GBLCSC03                                                              | 3              | 3.3                                              | 4.0                                                           | 13.0V @ 10.0A                                                                    | 1.0                                                           | 1                                                 |
| GBLCSC03C                                                             | H              | 3.3                                              | 4.0                                                           | 13.0V @ 10.0A                                                                    | 1.0                                                           | 1                                                 |
| GBLCSC05                                                              | 5              | 5.0                                              | 6.0                                                           | 16.0V @ 10.0A                                                                    | 1.0                                                           | 1                                                 |
| GBLCSC05C                                                             | O              | 5.0                                              | 6.0                                                           | 16.0V @ 10.0A                                                                    | 1.0                                                           | 1                                                 |
| GLBCSC08                                                              | I              | 8.0                                              | 8.5                                                           | --                                                                               | 1.0                                                           | 1                                                 |
| GBLCSC08C                                                             | K              | 8.0                                              | 8.5                                                           | --                                                                               | 1.0                                                           | 1                                                 |

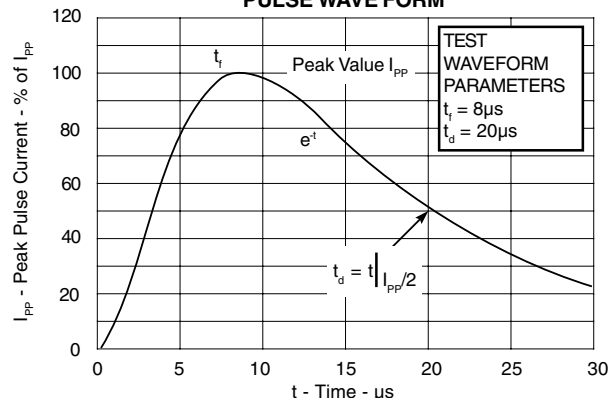
**Note 1:** Part numbers with an additional "C" suffix are bidirectional devices, i.e., GBLSC05C. For other voltages contact factory.

**Note 2:** For Bidirectional Devices Only: Electrical characteristics apply in both directions.

**FIGURE 1**  
PEAK PULSE POWER VS PULSE TIME

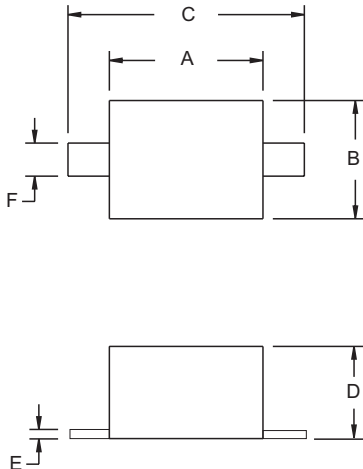
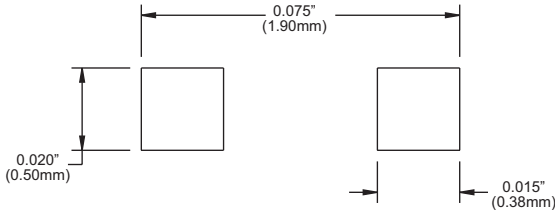


**FIGURE 2**  
PULSE WAVE FORM



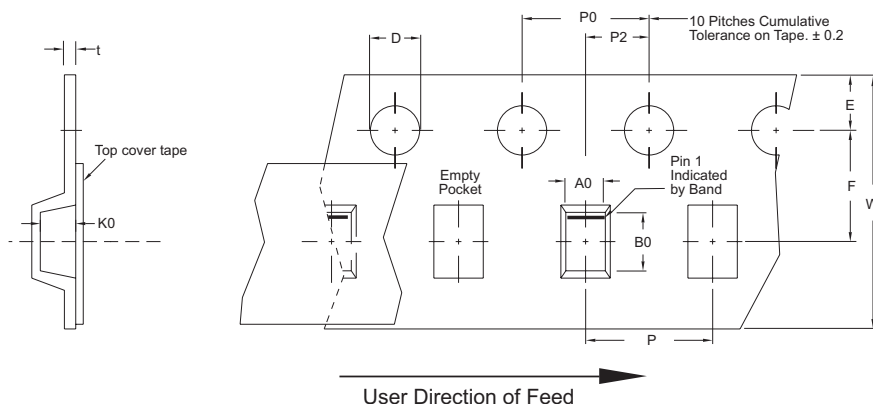
# GBLCSC03 thru GBLCSC08C

## SC-79 PACKAGE OUTLINE & DIMENSIONS

| <div>PACKAGE OUTLINE</div> <div></div> | <div>SC79 PACKAGE</div> <div></div> <div>PACKAGE DIMENSIONS</div> <table><tr><th rowspan="2">DIM</th><th colspan="2">INCHES</th><th colspan="2">MILLIMETERS</th></tr><tr><th>MIN</th><th>MAX</th><th>MIN</th><th>MAX</th></tr><tr><td>A</td><td>0.043</td><td>0.049</td><td>1.10</td><td>1.30</td></tr><tr><td>B</td><td>0.028</td><td>0.035</td><td>0.70</td><td>0.90</td></tr><tr><td>C</td><td>0.059</td><td>0.066</td><td>1.50</td><td>1.70</td></tr><tr><td>D</td><td>0.020</td><td>0.028</td><td>0.50</td><td>0.70</td></tr><tr><td>E</td><td>0.003</td><td>0.008</td><td>0.08</td><td>0.20</td></tr><tr><td>F</td><td colspan="2">0.012 BSE</td><td colspan="2">0.30 BSE</td></tr></table> | DIM   | INCHES      |      | MILLIMETERS |  | MIN | MAX | MIN | MAX | A | 0.043 | 0.049 | 1.10 | 1.30 | B | 0.028 | 0.035 | 0.70 | 0.90 | C | 0.059 | 0.066 | 1.50 | 1.70 | D | 0.020 | 0.028 | 0.50 | 0.70 | E | 0.003 | 0.008 | 0.08 | 0.20 | F | 0.012 BSE |  | 0.30 BSE |  |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|------|-------------|--|-----|-----|-----|-----|---|-------|-------|------|------|---|-------|-------|------|------|---|-------|-------|------|------|---|-------|-------|------|------|---|-------|-------|------|------|---|-----------|--|----------|--|
| DIM                                                                                                                     | INCHES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       | MILLIMETERS |      |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
|                                                                                                                         | MIN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MAX   | MIN         | MAX  |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
| A                                                                                                                       | 0.043                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.049 | 1.10        | 1.30 |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
| B                                                                                                                       | 0.028                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.035 | 0.70        | 0.90 |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
| C                                                                                                                       | 0.059                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.066 | 1.50        | 1.70 |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
| D                                                                                                                       | 0.020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.028 | 0.50        | 0.70 |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
| E                                                                                                                       | 0.003                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0.008 | 0.08        | 0.20 |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
| F                                                                                                                       | 0.012 BSE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       | 0.30 BSE    |      |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |
| <div>MOUNTING PAD</div> <div></div>   | <div>NOTES</div> <div><div>1. Controlling Dimensions in Millimeters.</div><div>2. Dimensions are exclusive of mold flash and metal burrs.</div></div> <div>TAPE &amp; REEL ORDERING NOMENCLATURE</div> <div><div>1. Surface mount product is taped and reeled in accordance with EIA-481.</div><div>2. Suffix-T7 = 7 Inch Reel - 4,000 pieces per 8mm tape, i.e., GBLCS05-LF-T74.</div><div>3. Suffix-LF = Lead-Free, Pure Tin Plating, i.e., GBLCS05C-LF-T74.</div></div> <div>Outline &amp; Dimensions: Rev 2 - 9/05, 06037</div>                                                                                                                                                                                                                                                  |       |             |      |             |  |     |     |     |     |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |       |       |      |      |   |           |  |          |  |

Tape & Reel Specifications (Dimensions in millimeters)

| Reel Dia.  | Tape Width | A0          | B0          | K0          | D           | E           | F           | W           | P0          | P2          | P           | tmax |
|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| 178mm (7") | 8mm        | 1.00 ± 0.10 | 1.95 ± 0.05 | 0.75 ± 0.05 | 1.50 ± 0.10 | 1.75 ± 0.10 | 3.50 ± 0.05 | 8.00 ± 0.30 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.10 | 0.25 |



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