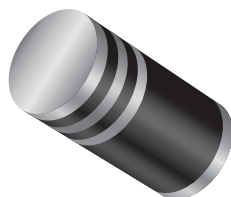




## TRANSZorb® Transient Voltage Suppressors



DO-213AB (GL41)

## FEATURES

- Plastic MELF package
- Ideal for automated placement
- Glass passivated chip junction
- Available in uni-directional polarity only
- 400 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

RoHS  
COMPLIANT

## TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, and telecommunication.

## MECHANICAL DATA

**Case:** DO-213AB (GL41)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Blue band denotes the cathode which is positive with respect to the anode under normal TVS operation

| PRIMARY CHARACTERISTICS  |                  |
|--------------------------|------------------|
| $V_{BR}$ uni-directional | 6.45 V to 210 V  |
| $V_{WM}$                 | 5.8 V to 171 V   |
| $P_{PPM}$                | 400 W, 200 W     |
| $P_D$                    | 1.0 W            |
| $I_{FSM}$                | 40 A             |
| $T_J$ max.               | 150 °C           |
| Polarity                 | Uni-directional  |
| Package                  | DO-213 AB (GL41) |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                               |                |                |      |
|---------------------------------------------------------------------------------------|----------------|----------------|------|
| PARAMETER                                                                             | SYMBOL         | VALUE          | UNIT |
| Peak pulse power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup> (fig. 1)  | $P_{PPM}$      | 400            | W    |
| Power dissipation on infinite heatsink at $T_L = 75$ °C                               | $P_D$          | 1.0            | W    |
| Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup> (fig. 3)            | $I_{PPM}$      | See next table | A    |
| Peak forward surge current, 8.3 ms half sine-wave uni-directional only <sup>(2)</sup> | $I_{FSM}$      | 40             | A    |
| Maximum instantaneous forward voltage at 25 A for uni-directional only                | $V_F$          | 3.5            | V    |
| Operating junction and storage temperature range                                      | $T_J, T_{STG}$ | - 55 to 150    | °C   |

## Notes

<sup>(1)</sup> Non-repetitive current pulse, per fig. 3 and derated above  $T_A = 25$  °C per fig. 2. Rating is 200 W above 91 V

<sup>(2)</sup> Measured at 8.3 ms single half sine-wave or equivalent square wave duty cycle = 4 pulses per minute maximum

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

| DEVICE TYPE | BREAKDOWN VOLTAGE $V_{BR}^{(1)}$ (V) |      | TEST CURRENT $I_T$ (mA) | STAND-OFF VOLTAGE $V_{WM}$ (V) | MAXIMUM REVERSE LEAKAGE AT $V_{WM}$ $I_D$ ( $\mu\text{A}$ ) | MAXIMUM PEAK PULSE CURRENT $I_{PPM}^{(2)}$ (A) | MAXIMUM CLAMPING VOLTAGE AT $I_{PPM}$ $V_C$ (V) | MAXIMUM TEMPERATURE COEFFICIENT OF $V_{BR}$ ( $\%/^\circ\text{C}$ ) |
|-------------|--------------------------------------|------|-------------------------|--------------------------------|-------------------------------------------------------------|------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------|
|             | MIN.                                 | MAX. |                         |                                |                                                             |                                                |                                                 |                                                                     |
| TGL41-6.8A  | 6.45                                 | 7.14 | 10                      | 5.80                           | 1000                                                        | 38.1                                           | 10.5                                            | 0.060                                                               |
| TGL41-7.5A  | 7.13                                 | 7.88 | 10                      | 6.40                           | 500                                                         | 35.4                                           | 11.3                                            | 0.064                                                               |
| TGL41-8.2A  | 7.79                                 | 8.61 | 10                      | 7.02                           | 200                                                         | 33.1                                           | 12.1                                            | 0.068                                                               |
| TGL41-9.1A  | 8.65                                 | 9.55 | 1.0                     | 7.78                           | 50.0                                                        | 29.9                                           | 13.4                                            | 0.071                                                               |
| TGL41-10A   | 9.5                                  | 10.5 | 1.0                     | 8.55                           | 10.0                                                        | 27.6                                           | 14.5                                            | 0.076                                                               |
| TGL41-11A   | 10.5                                 | 11.6 | 1.0                     | 9.40                           | 5.0                                                         | 25.6                                           | 15.6                                            | 0.078                                                               |
| TGL41-12A   | 11.4                                 | 12.6 | 1.0                     | 10.2                           | 5.0                                                         | 24.0                                           | 16.7                                            | 0.081                                                               |
| TGL41-13A   | 12.4                                 | 13.7 | 1.0                     | 11.1                           | 5.0                                                         | 22.0                                           | 18.2                                            | 0.084                                                               |
| TGL41-15A   | 14.3                                 | 15.8 | 1.0                     | 12.8                           | 5.0                                                         | 18.9                                           | 21.2                                            | 0.087                                                               |
| TGL41-16A   | 15.2                                 | 16.8 | 1.0                     | 13.6                           | 5.0                                                         | 17.8                                           | 22.5                                            | 0.089                                                               |
| TGL41-18A   | 17.1                                 | 18.9 | 1.0                     | 15.3                           | 5.0                                                         | 15.9                                           | 25.2                                            | 0.091                                                               |
| TGL41-20A   | 19.0                                 | 21.0 | 1.0                     | 17.1                           | 5.0                                                         | 14.4                                           | 27.7                                            | 0.093                                                               |
| TGL41-22A   | 20.9                                 | 23.1 | 1.0                     | 18.8                           | 5.0                                                         | 13.1                                           | 30.6                                            | 0.095                                                               |
| TGL41-24A   | 22.8                                 | 25.2 | 1.0                     | 20.5                           | 5.0                                                         | 12.0                                           | 33.2                                            | 0.097                                                               |
| TGL41-27A   | 25.7                                 | 28.4 | 1.0                     | 23.1                           | 5.0                                                         | 10.7                                           | 37.5                                            | 0.099                                                               |
| TGL41-30A   | 28.5                                 | 31.5 | 1.0                     | 25.6                           | 5.0                                                         | 9.7                                            | 41.4                                            | 0.100                                                               |
| TGL41-33A   | 31.4                                 | 34.7 | 1.0                     | 28.2                           | 5.0                                                         | 8.8                                            | 45.7                                            | 0.101                                                               |
| TGL41-36A   | 34.2                                 | 37.8 | 1.0                     | 30.8                           | 5.0                                                         | 8.0                                            | 49.9                                            | 0.102                                                               |
| TGL41-39A   | 37.1                                 | 41.0 | 1.0                     | 33.3                           | 5.0                                                         | 7.4                                            | 53.9                                            | 0.103                                                               |
| TGL41-43A   | 40.9                                 | 45.2 | 1.0                     | 36.8                           | 5.0                                                         | 6.7                                            | 59.3                                            | 0.104                                                               |
| TGL41-47A   | 44.7                                 | 49.4 | 1.0                     | 40.2                           | 5.0                                                         | 6.2                                            | 64.8                                            | 0.104                                                               |
| TGL41-51A   | 48.5                                 | 53.6 | 1.0                     | 43.6                           | 5.0                                                         | 5.7                                            | 70.1                                            | 0.105                                                               |
| TGL41-56A   | 53.2                                 | 58.8 | 1.0                     | 47.8                           | 5.0                                                         | 5.2                                            | 77.0                                            | 0.106                                                               |
| TGL41-62A   | 58.9                                 | 65.1 | 1.0                     | 53.0                           | 5.0                                                         | 4.7                                            | 85.0                                            | 0.107                                                               |
| TGL41-68A   | 64.6                                 | 71.4 | 1.0                     | 58.1                           | 5.0                                                         | 4.3                                            | 92.0                                            | 0.107                                                               |
| TGL41-75A   | 71.3                                 | 78.8 | 1.0                     | 64.1                           | 5.0                                                         | 3.9                                            | 103                                             | 0.108                                                               |
| TGL41-82A   | 77.9                                 | 86.1 | 1.0                     | 70.1                           | 5.0                                                         | 3.5                                            | 113                                             | 0.108                                                               |
| TGL41-91A   | 86.5                                 | 95.5 | 1.0                     | 77.8                           | 5.0                                                         | 3.2                                            | 125                                             | 0.109                                                               |
| TGL41-100A  | 95.0                                 | 105  | 1.0                     | 85.5                           | 5.0                                                         | 1.46                                           | 137                                             | 0.109                                                               |
| TGL41-110A  | 105                                  | 116  | 1.0                     | 94.0                           | 5.0                                                         | 1.32                                           | 152                                             | 0.110                                                               |
| TGL41-120A  | 114                                  | 126  | 1.0                     | 102                            | 5.0                                                         | 1.21                                           | 165                                             | 0.110                                                               |
| TGL41-130A  | 124                                  | 137  | 1.0                     | 111                            | 5.0                                                         | 1.12                                           | 179                                             | 0.110                                                               |
| TGL41-150A  | 143                                  | 158  | 1.0                     | 128                            | 5.0                                                         | 0.97                                           | 207                                             | 0.111                                                               |
| TGL41-160A  | 152                                  | 168  | 1.0                     | 136                            | 5.0                                                         | 0.91                                           | 219                                             | 0.111                                                               |
| TGL41-170A  | 162                                  | 179  | 1.0                     | 145                            | 5.0                                                         | 0.85                                           | 234                                             | 0.111                                                               |
| TGL41-180A  | 171                                  | 189  | 1.0                     | 154                            | 5.0                                                         | 0.81                                           | 246                                             | 0.111                                                               |
| TGL41-200A  | 190                                  | 210  | 1.0                     | 171                            | 5.0                                                         | 0.73                                           | 274                                             | 0.111                                                               |

**Notes**(1) Pulse test:  $t_p \leq 50$  ms

(2) Surge current waveform per fig. 3 and derate per fig. 2

(2) All terms and symbols are consistent with ANSI/IEEE C62.35

**ORDERING INFORMATION** (Example)

| PREFERRED PIN    | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                      |
|------------------|-----------------|------------------------|---------------|------------------------------------|
| TGL41-6.8A-E3/96 | 0.134           | 96                     | 1500          | 7" diameter plastic tape and reel  |
| TGL41-6.8A-E3/97 | 0.134           | 97                     | 5000          | 13" diameter plastic tape and reel |



## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

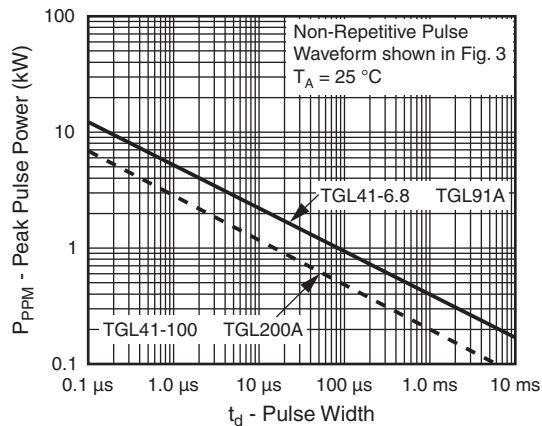


Fig. 1 - Peak Pulse Power Rating Curve

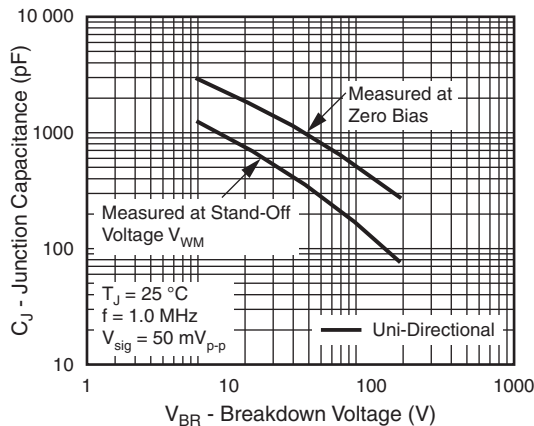


Fig. 4 - Typical Junction Capacitance

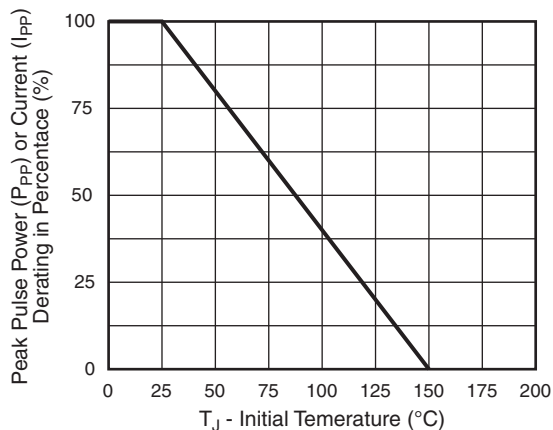


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

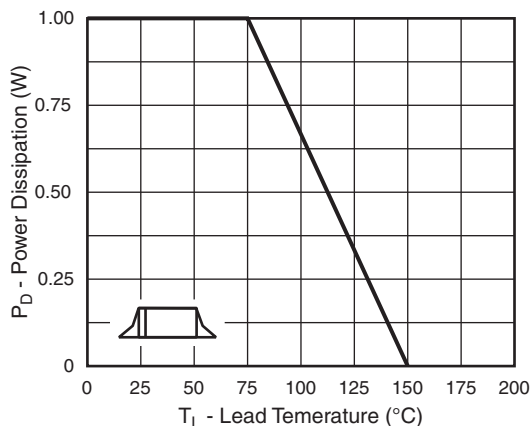


Fig. 5 - Power Derating Curve

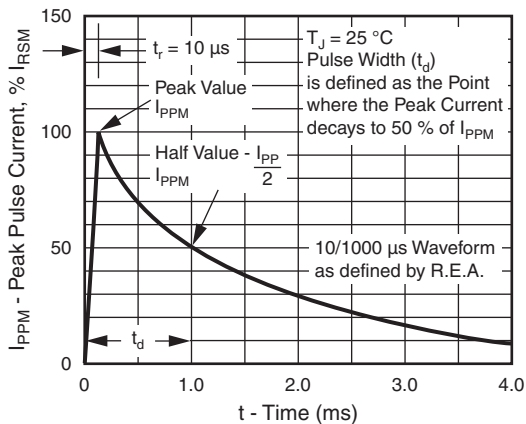


Fig. 3 - Pulse Waveform

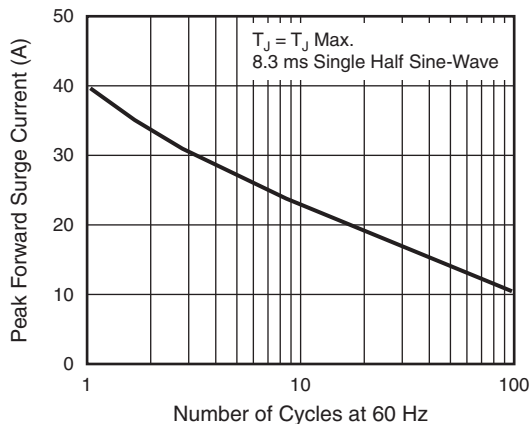
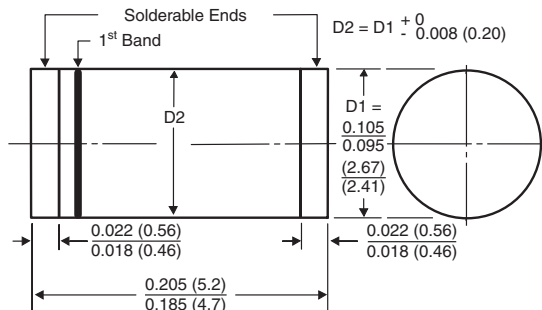


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current  
Uni-Directional Only



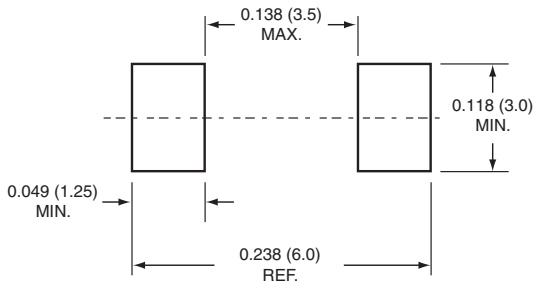
**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-213AB (GL41)**



1<sup>st</sup> Band Denotes Type and Positive End (Cathode)

**Mounting Pad Layout**





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