

## Three-Electrode Triggered Spark Gaps Selection Guide

Product Family	Triggered Spark Gaps				
Voltage Range	1.0 - 60.0kV				
Series <sup>[Notes 3,4,7]</sup>	TX	TA	TB	TG221-226	TG Legacy
Description	Miniature Ceramic - Metal Low Cost	Ceramic - Metal Medium Energy	Ceramic - Metal High Energy	Adjustable Very High Energy O-Ring Sealed	Glass - Metal & Ceramic - Metal High Energy
MSB @ 100V/s Trigger Voltage <sup>[Note 14]</sup> IR @ 100Vdc	2.0 - 10.0kV 1.8 - 4.7kV 10 <sup>10</sup> Ohms	1.0 - 15.0kV 2.5 - 8.0kV 10 <sup>10</sup> Ohms	2.5 - 25.0kV 1.8 - 9.7kV 10 <sup>10</sup> Ohms	1.0 - 60.0kV 1.0 - 30.0kV 10 <sup>10</sup> Ohms	1.0 - 30.0kV 1.5 - 12.0kV 10 <sup>10</sup> Ohms
Surge Life Ratings	10,000 shots @ 5,000A (0.7Joules) E <sub>bb</sub> = 3,000V	1,000 shots @ 5,000A (50 Joules) E <sub>bb</sub> = 4,000V	1,000 shots @ 5,000A (150 Joules) E <sub>bb</sub> = 4,000V	1,000 shots @ 5,000A (3,000 Joules) E <sub>bb</sub> = 16,000V	1,000 shots @ 5,000A (150 Joules) E <sub>bb</sub> = 4,000V
Pulse Energy Ratings <sup>[Note 11]</sup>	1.6 Joules	45 - 70 Joules	150 - 300 Joules	3,000 - 6,000 Joules	45 - 6,000 Joules
Cumulative Charge Ratings <sup>[Note 8]</sup>	2.5 - 10.0 Coulombs	11 - 110 Coulombs	30 - 150 Coulombs	166 - 750 Coulombs	11 - 750 Coulombs
Applications	Space Vehicles Military Industrial Medical	Space Vehicles Military Industrial Medical	Military Industrial Medical	Military Industrial Medical Lab R&D Repetitive Switching	Space Vehicles Military Industrial Medical

MSB = Main Static Breakdown • E<sub>bb</sub> = Applied Voltage

- Note (3) Specifications listed for Impulse Breakdown and Capacitance are maximum values while IR specifications are nominal values and Surge Life specifications are minimum values.
- Note (4) The range of values corresponds to the low and high member of the Series.
- Note (7) The trigger pulse used for development of ratings was 0.5µs rise time and 3.0µs pulse width.
- Note (8) Life ratings on select members of a Series are determined by laboratory tests and are dependent on the cumulative charge, in coulombs (Q), that is passed during the tests. By similarity, the Life Rating of the gaps of a Series, tested with different waveforms, can be approximated by dividing the Cumulative Charge Rating by the charge content in the given waveform that is passed without changing its DC Breakdown Voltage by more than 20%. The coulomb content of any surge current can be approximated by determining the area under the current waveform.
- Note (11) The Pulse Energy is the stored energy which the spark gap can dissipate per discharge, during intermittent duty, without permanently changing its breakdown ratings by more than 10%. The principal effect of excessive pulse energies is rapid electrode erosion and change in breakdown characteristics.
- Note (14) The trigger voltages shown are the minimum voltages necessary for triggering at the corresponding applied voltage limits. As the applied voltage increases, the trigger voltage required for triggering decreases.