

EOS-500 Series Electrical Overstress Pulse Generator



1. Description

The series EOS-500 is a pulse generator designed for general EOS tests with rise time adjustable from ns to μ s range, and pulse width adjustable from ns to s range. Multiple pulse channels could be combined in single unit to cover different output range and pulse durations.

2. Features

- Optional 50 Ohm and 2 Ohm Output Impedance Configurations
- Touch Panel User Interface
- Programmable rise time options from ns to μ s range
- Continuous digitally adjustable Pulse-width from ns to s range
- Optional software controlled automatic pulse and IV curve measurement
- Optional automatic failure detection

3. Applications

- Long pulse EOS failure test and analysis for wafer, packaged device & system, etc.
- Automatic measurement software for pulsed safe operation area (SOA) tests

4. Specifications

The model ES500 is a highly customizable electrical overstress pulse generator.

50R Source impedance, single output, typical sub models

Parameters	ES500-50	ES500-2	Unit	Comments
Max output voltage @ open load	± 1000	+ 100	V	Depends on pulse width and model number
Min voltage step	0.1	0.1	V	
Output voltage Accuracy	$\leq \pm 5\% \pm 0.1 \text{ V}$	$\leq 5\% + 0.1 \text{ V}$		
Max output current @ short load	± 20	+ 50	A	Depends on pulse width and model number
Output Resistance	50	2	Ohm	
Fastest constant Risetime @ 50 Ω load	20	TBD	ns	Depends on fixture
Programmable Risetime Range	20 ns ~ 150 μ s	TBD		Risetime is not continuously adjustable
Rise Time Precision	≤ 10	≤ 10	%	Setup dependent
Pulse Width Range	100 ns – 10 ms	100 ns – 100 ms		Depends on model number
Pulse Width Step	5	5	ns	
Pulse Width Precision	$<\pm 10 \text{ ns}$	$\leq 5\%$		
Pulse Plateau Drop	≤ 5	≤ 15	%	
Dimensions	480 X 270 X 500	480 X 600 X 500	mm	
Weight	--	--	kg	Depends on the configuration

5. Ordering Information

Line	Part # or Option #	Description	Status
Impedance Electrical Overstress Pulse Generator (Typical Models, Customization Specifications available)			
1.1	ES500-50-50V1M	Electrical Overstress Pulse Generator, source impedance 50-ohm, maximum output voltage @ open load ± 50 V, pulse width 100 ns – 1 ms, rise time 20 ns (setup dependent). USB Supported.	Active
1.2	ES500-50-500V100U	Electrical Overstress Pulse Generator, source impedance 50-ohm, maximum output voltage @ open load ± 500 V, pulse width 100 ns – 0.1 ms, rise time 20 ns (setup dependent). USB Supported.	Active
1.3	ES500-50-500V1M	Electrical Overstress Pulse Generator, source impedance 50-ohm, maximum output voltage @ open load ± 500 V, pulse width 100 ns – 1 ms, rise time 20 ns (setup dependent). USB Supported.	Active
1.4	ES500-50-1K1M	Electrical Overstress Pulse Generator, source impedance 50-ohm, maximum output voltage @ open load ± 1 kV, pulse width 100 ns – 1 ms, rise time 20 ns (setup dependent). USB Supported.	Active
1.5	ES500-50-500V10M	Electrical Overstress Pulse Generator, source impedance 50-ohm, maximum output voltage @ open load ± 500 V, pulse width 100 ns –10 ms, rise time 20 ns (setup dependent). USB Supported.	Active
1.6	ES500-50-1k10M	Electrical Overstress Pulse Generator, source impedance 50-ohm, maximum output voltage @ open load ± 1 kV, pulse width 100 ns –10 ms, rise time 20 ns (setup dependent). USB Supported.	Active
1.7	ES500-50-C1	Customized Electrical Overstress Pulse Generator, source impedance 50-ohm, maximum output voltage @ open load up to ± 1 kV. pulse width 50 μ s– 2 s, continuously. adjustable with 2 μ s step. Pulse width range 50us~1ms up to ± 1 kV, pulse width range 1ms~2s up to ± 250 V. Up to 40X rise time (50ns, 60ns, 70ns, 80ns, 90ns, 100ns, 150 ns, 200ns, 250ns, 300ns, 350ns, 400ns, 450ns, 500ns, 550ns, 600ns, 700ns, 800ns, 900ns, 1us, 2us, 5us, 7.5us, 10us, 15us, 20us, 30us, 40us, 50us, 60us, 70us, 80us, 90us, 100us, 110us, 120us, 130us, 140us, 150us, etc.). USB Supported.	Active

1.8	ES500-2-50V100U	Electrical Overstress Pulse Generator, source impedance 2-ohm, maximum output voltage @ open load + 50 V, one polarity pulse width 100 ns – 0.1 ms, USB Supported.	Active
1.9	ES500-2-100V1M	Electrical Overstress Pulse Generator, source impedance 2-ohm, maximum output voltage @ open load + 100 V, one polarity pulse width 100 ns – 1 ms, USB Supported.	Active
1.10	ES500-2-100V100M	Electrical Overstress Pulse Generator, source impedance 2-ohm, maximum output voltage @ open load + 100 V, one polarity pulse width 100 ns – 100 ms, USB Supported.	Active
Additional Options			
2.1	EOS-TS-SW	Automatic Test Software for EOS-500 test system	Active
2.2	ES62X-SSM	System Switch Module (switching between pulse and DC test)	Active
2.3	ES500-PSTT	Package level EOS pulse injection and IV-Curve measurement option	Active
2.4	ES500-WSTT	Wafer level EOS pulse injection and IV-Curve measurement option	Active
2.5	KSMU2450	SMU, 200V, 1A, 20W, Single Channel (For device DC failure check)	Active
2.6	CMPS-200A	Compact Manual Probe Station	Active
2.7	CT-S03	Passive current probe, 0.01 V/A, 3 Hz to 20 MHz	Active
2.8	CT-DC50M50A	DC current probe, 50A, 50 MHz	Active

Note: EOS-500 is a highly customizable pulse generator and can be expanded into an automated pulsed IV-curve and failure detection system.

6. Some of the measured Pulse Waveforms



