PRODUCT DATA SHEET

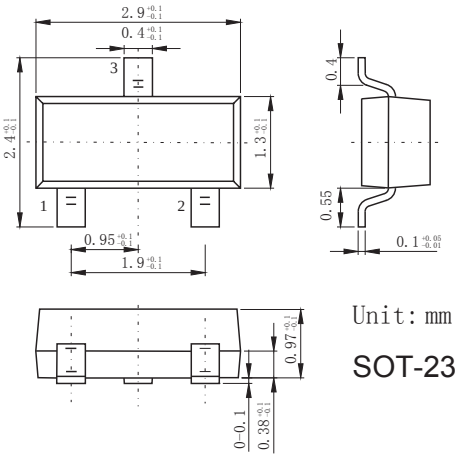
To learn more about JGSEMI, please visit our website at

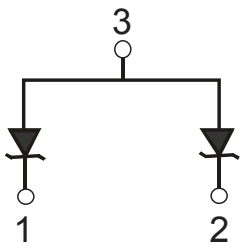
Datasheet Resources Samples

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.jg-semi.cn. Please email any questions regarding the system integration to JINGAO_questions@jgsemi.com.

■ Features

- 300 Watts Peak Pulse Power (tp = 8/20μs)
- Transient protection for data & power lines to
  IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
  IEC 61000-4-4 (EFT) 40A (5/50ns)
  IEC 61000-4-5 (Lightning) 12A (8/20μs)
- Working Voltages: 5V, 12V, 15V, 24 and 36V
- Low clamping voltage





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Peak Pulse Power (tp = 8/20μs)	P_{PK}	300	W
Thermal Resistance Junction to Ambient *3	$R_{\theta JA}$	556	℃/W
Lead Soldering Temperature	T_L	260	℃
Junction Temperature	T_J	125	
Storage Temperature range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

SM05

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6			V
Reverse Stand-Off Voltage	V_{RWM}				5	
Clamping Voltage	V_C	I_{PP}= 1 A, t_P=8/20us			9.8	
Reverse Leakage Current	I_R	V_R=5 V			20	uA
Peak Pulse Current	I_{PP}	t_P=8/20us			17	A
Junction Capacitance	C_J	Pin 1 to 2 ,V_R = 0V,f=1MHz			350	pF
		Pin 1 to 2 and Pin 2 to 3 ,V_R = 0V,f=1MHz			400	

■ Electrical Characteristics Ta = 25℃

SM12

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	13.3			V
Reverse Stand-Off Voltage	V_{RWM}				12	
Clamping Voltage	V_C	I_{PP}= 1 A, t_P=8/20us			19	
Reverse Leakage Current	I_R	V_R=12 V			1	uA
Peak Pulse Current	I_{PP}	t_P=8/20us			12	A
Junction Capacitance	C_J	Pin 1 to 2 ,V_R = 0V,f=1MHz			120	pF
		Pin 1 to 2 and Pin 2 to 3 ,V_R = 0V,f=1MHz			150	

SM15

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	16.7			V
Reverse Stand-Off Voltage	V_{RWM}				15	
Clamping Voltage	V_C	I_{PP}= 1 A, t_P=8/20us			24	
Reverse Leakage Current	I_R	V_R=15 V			1	uA
Peak Pulse Current	I_{PP}	t_P=8/20us			10	A
Junction Capacitance	C_J	Pin 1 to 2 ,V_R = 0V,f=1MHz			75	pF
		Pin 1 to 2 and Pin 2 to 3 ,V_R = 0V,f=1MHz			100	

SM24

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	26.7			V
Reverse Stand-Off Voltage	V_{RWM}				24	
Clamping Voltage	V_C	I_{PP}= 1 A, t_P=8/20us			43	
Reverse Leakage Current	I_R	V_R=24 V			1	uA
Peak Pulse Current	I_{PP}	t_P=8/20us			5	A
Junction Capacitance	C_J	Pin 1 to 2 ,V_R = 0V,f=1MHz			50	pF
		Pin 1 to 2 and Pin 2 to 3 ,V_R = 0V,f=1MHz			60	

SM36

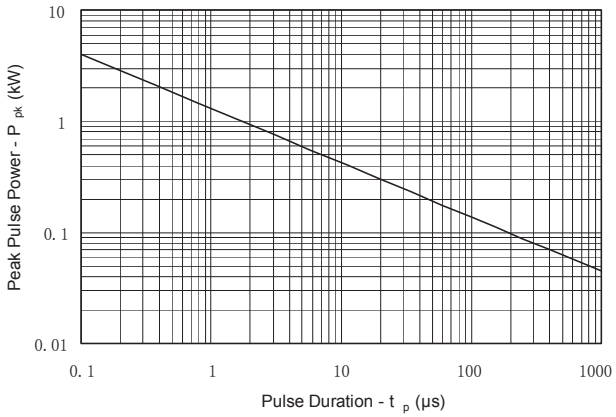
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	40			V
Reverse Stand-Off Voltage	V_{RWM}				36	
Clamping Voltage	V_C	I_{PP}= 1 A, t_P=8/20us			60	
Reverse Leakage Current	I_R	V_R=36 V			1	uA
Peak Pulse Current	I_{PP}	t_P=8/20us			4	A
Junction Capacitance	C_J	Pin 1 to 2 ,V_R = 0V,f=1MHz			40	pF
		Pin 1 to 2 and Pin 2 to 3 ,V_R = 0V,f=1MHz			45	

■ Marking

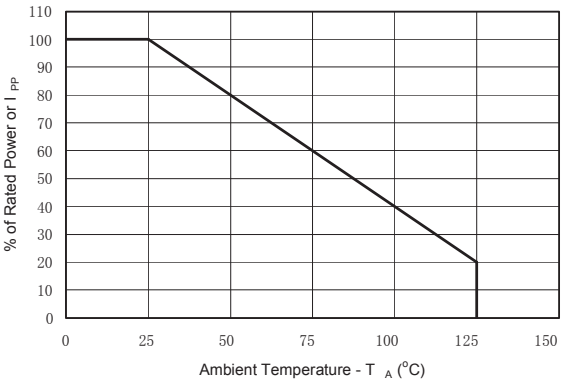
NO	SM05	SM12	SM15	SM24	SM36
Marking	M05	M12	M15	M24	M36

■ Typical Characterisitics

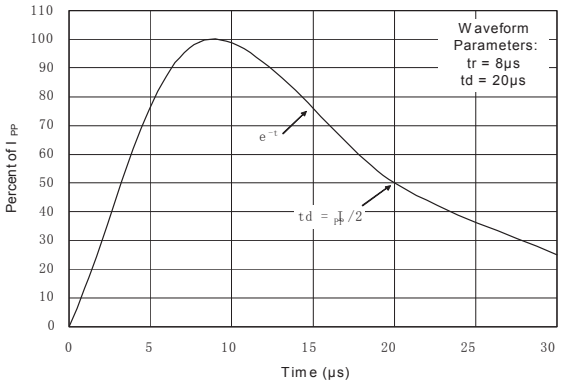
Non-Repetitive Peak Pulse Power vs. Pulse Time



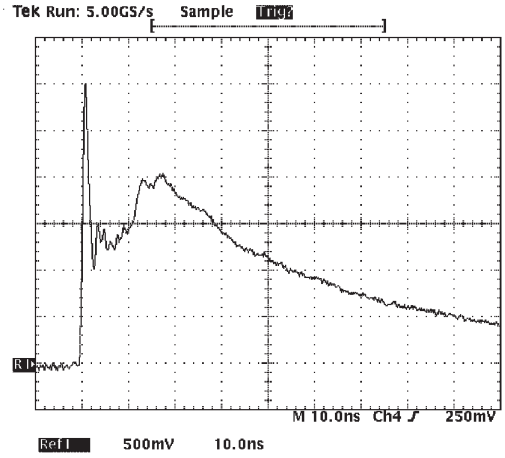
Power Derating Curve



Pulse Waveform



ESD Pulse Waveform (Per IEC 61000-4-2)



IEC 61000-4-2 Discharge Parameters

Level	First Peak Current (A)	Peak Current at 30 ns (A)	Peak Current at 60 ns (A)	Test Voltage (Contact Discharge) (kV)	Test Voltage (Air Discharge) (kV)
1	7.5	4	8	2	2
2	15	8	4	4	4
3	22.5	12	6	6	8
4	30	16	8	8	15

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