

## Preliminary Data Sheet

### Low Capacitance ESD Protection Diodes

#### Features:

- Low Capacitance ESD Diodes
- Very Low Differential Capacitance
- Extremely Low Leakage Current
- Precise Clamping Voltage
- Small Package Size
- Bi-directional Operation
- Flow Thru Layout
- IEC61000-4-2 Level 4 ESD protection
- RoHS compliant (lead-free) package

#### Applications:

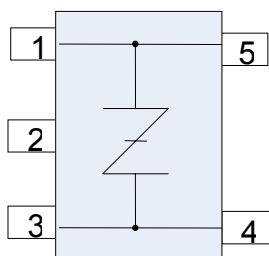
- VDSL, ADSL, Access and Central Office
- IC Line Driver Chipset Protection
- 10/100/1000 Ethernet Protection
- RS-232, RS-485 Transceiver Protection

#### Product Description

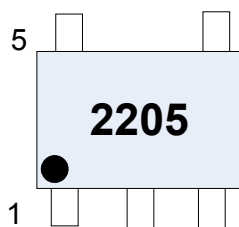
The ESD2205 is a low voltage and low capacitance over-voltage protection device protect high-speed xDSL line drivers and chipsets from both Lightning Surge and ESD events. The devices are designed with a low nominal capacitance as well as extremely low differential capacitance across frequency and voltage. The inherent low off-state leakage current provides superior performance in low voltage high-speed applications. These characteristics allow protection of the system without distortion of the high-speed data signal. With its advanced silicon structure the ESD2205 product is able to clamp very fast ESD events, and crowbar high energy surge events to help protect sensitive IC's all in a small footprint. The convenient flow thru design minimizes trace routing while maximizing circuit performance.

The ESD2205 is packaged in a TSOP-5 and is in full RoHS compliance.

### Schematic & PIN Configuration



TOP VIEW



ELECTRICAL CHARACTERISTICS				
$V_{RWM}$	$V_{BR1}$	$I_{R@}$ $V_R = V_{RWM}$	$C@$ $V_R = 2V$	$^{\circ}C$ $0 V - V_{RWM}$
(V)	(V)	( $\mu A$ )	(Pf)	(pF)
12	12.5	0.5	11	3

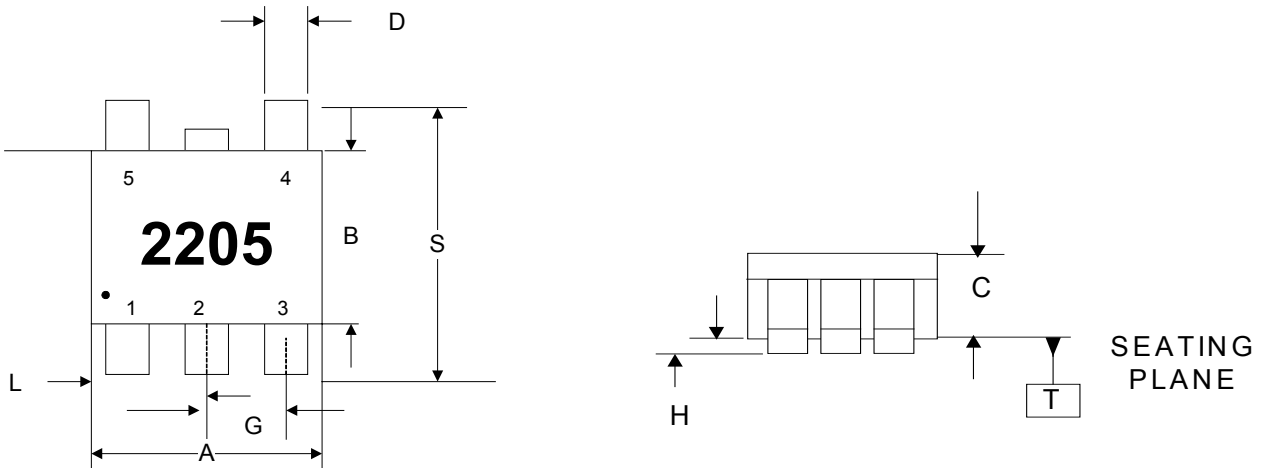
SURGE/ESD RATINGS			
Waveform	8x20 $\mu A$	ESD Air	ESD Contact
Value	50 A	15 kV	8 kV

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Electrical Characteristics (T <sub>A</sub> =25°C)						
Symbol	Parameter		Min.	Typ.	Max.	Units
V <sub>RWM</sub>	<b>Repetitive peak off-state voltage:</b> Rated maximum (peak) continuous voltage that may be applied in the off-state condition				±12	V
V <sub>BR1</sub>	<b>Breakdown Voltage:</b> The minimum voltage across the device in or at the breakdown region. Measured at I <sub>BR</sub> = 1 mA		12.5			V
V <sub>(BO)</sub>	<b>Breakover Voltage:</b> The maximum voltage across the device in or at the breakover region. Measured at I <sub>(BO)</sub> = 800 mA				30	V
I <sub>R</sub>	<b>Off-state Current:</b> The dc value of current that results from the application of the off-state voltage				0.5	μA
I <sub>H</sub>	<b>Holding Current:</b> The minimum current required to maintain the device in the on-state.			50		mA
C <sub>0</sub>	<b>Off-State Capacitance:</b> f = 1.0 MHz, V <sub>d</sub> = 1.0 Vrms, V <sub>D</sub> = -2 Vdc				11	pF
C <sub>1</sub>	<b>Capacitance:</b> f = 1.0 MHz, V <sub>d</sub> = 1.0 Vrms, V <sub>D</sub> =  0 V - V <sub>rwm</sub>			3		pF
IPPS	<b>Peak Pulse Current:</b> Rated maximum value of peak impulse pulse current that may be applied. 8x20 μs, IEC61000-4-5		50			A
ESD	<b>Electrostatic Discharge:</b> Rated maximum value of ESD per IEC61000-4-2	Contact		8		kV
		Air		15		
T <sub>STG</sub>	<b>Storage Temperature Range</b>		-55		+150	°C
T <sub>J</sub>	<b>Operating Junction Temperature Range</b>		-40		+125	°C

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### Package Outline Drawing TSOP-5



### Mechanical Details

DIM	Millimeter	
	MIN	MAX
A	3.0 BSC	
B	1.5 BSC	
C	0.90	1.10
D	0.25	0.50
G	0.95 BSC	
H	0.01	0.10
L	1.25	1.55
S	2.50	3.00

ORDERING PART NUMBER					
PART NUMBER	NUMBER OF CHANNLES	PACKAGE TYPE	DEVICE MARKING	T & R Qty	ROHS COMPLIANCE
ESD2205	2	TSOP-5	2205	3,000/Reel	YES