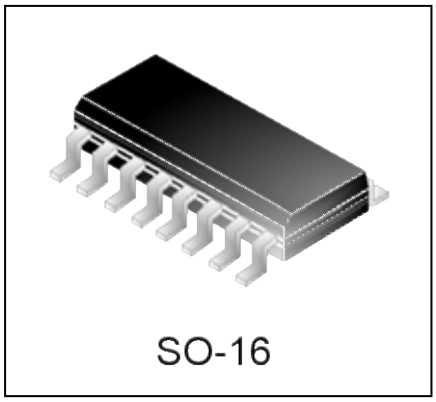
WS12-8LCDA and WS15-8LCDA

Transient Voltage Suppressor

Features



- Transient protection for high-speed data lines to
- Protects eight I/O lines
- Low capacitance for high-speed interfaces
- High surge capability
- Low clamping voltage
- Solid-state silicon avalanche technology

IEC COMPATIBILITY (EN61000-4)

- **IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)**
- **IEC 61000-4-4 (EFT) 40A (5/50ns)**
- **IEC 61000-4-5 (Lightning)0.5kV，12A (8/20μs)**

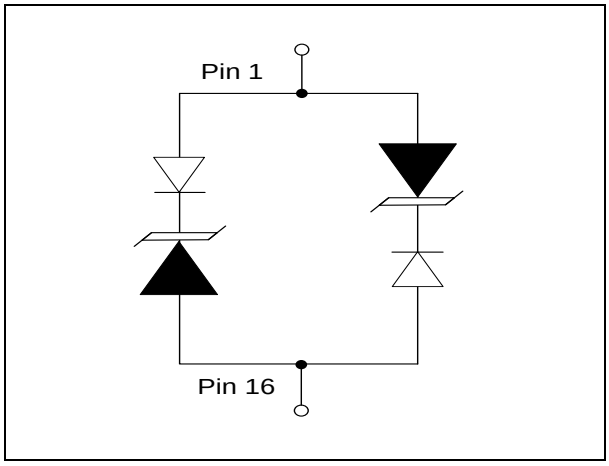
Mechanical Characteristics

- JEDEC SO-16 package
- Molding compound flammability rating: UL 94V-0
- Marking : Part number, date code, logo
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

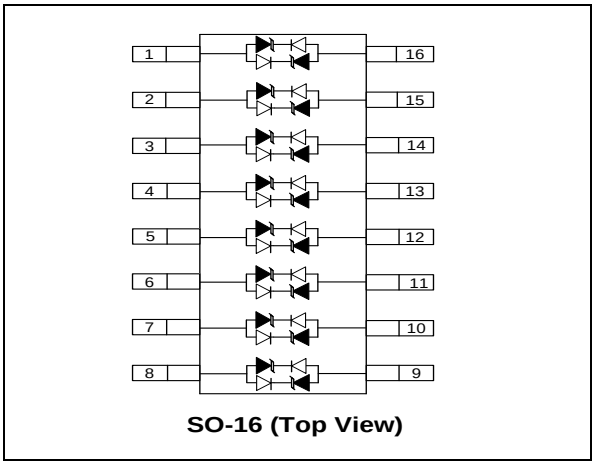
Applications

- Multi-Mode Transceiver Protection
- WAN Equipment:
  CSU/DSU, Multiplexers, Routers
  ISP Equipment
  Customer Premise Equipment
- Protection for any of the following interfaces:
  RS-232 (V.28), RS-422 (V.11, X.21)
  RS-449 (V.11/V.10)

Circuit Diagram



Schematic & PIN Configuration

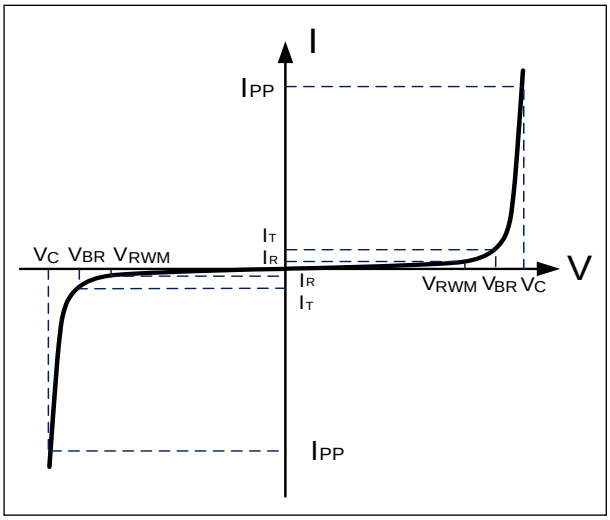


SO-16 (Top View)

Absolute Maximum Rating			
Rating	**Symbol**	**Value**	**Units**
Peak Pulse Power（t_p =8/20μs）	P_{PK}	500	Watts
Lead Soldering Temperature	T_L	260 (10 sec.)	°C
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25℃)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



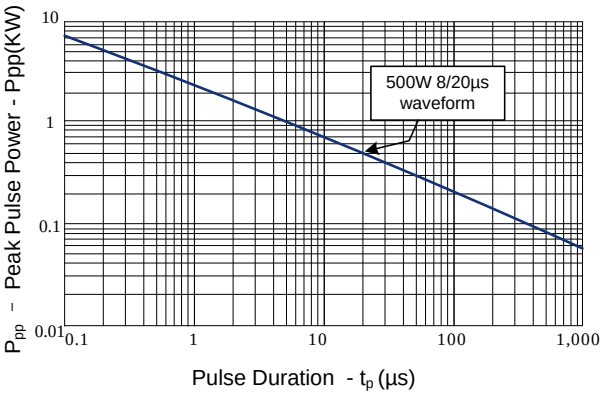
Electrical Characteristics

WS12-8LCDA						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	13.3			V
Reverse Leakage Current	I_R	V_{RWM}=12V,T=25°C			5	μA
Clamping Voltage	V_C	I_{PP}=5A, t_p=8/20μs			19	V
Clamping Voltage	V_C	I_{PP}=20A, t_p=8/20μs			26.6	V
Peak Pulse Current	I_{PP}	t_p=8/20μs			20	A
Junction Capacitance	C_j	Between I/O pins and Ground V_R = 0V, f = 1MHz		8	15	pF

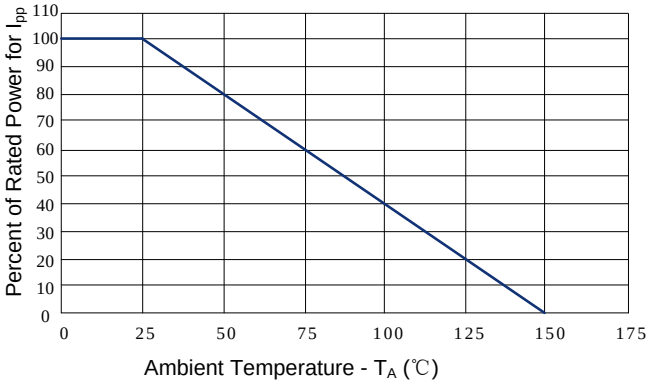
WS15-8LCDA						
Parameter	**Symbol**	**Conditions**	**Minimum**	**Typical**	**Maximum**	**Units**
Reverse Stand-Off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	16.7			V
Reverse Leakage Current	I_R	V_{RWM}=15V,T=25°C			5	μA
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs			24	V
Clamping Voltage	V_C	I_{PP}=15A, t_p=8/20μs			33	V
Peak Pulse Current	I_{PP}	t_p=8/20μs			15	A
Junction Capacitance	C_j	Between I/O pins and Ground V_R = 0V, f = 1MHz		8	15	pF

Typical Characteristics

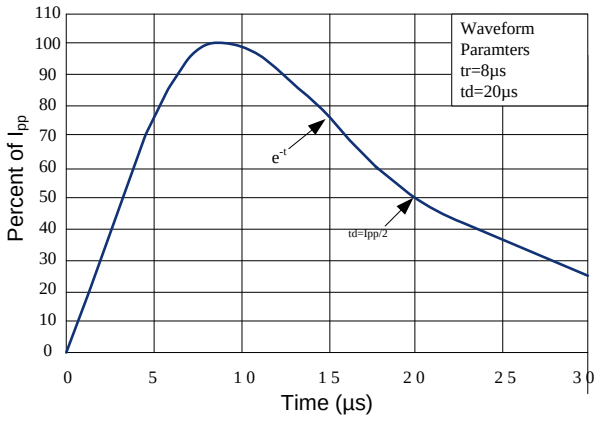
Non-Repetitive Peak Pulse Power vs. Pulse Time



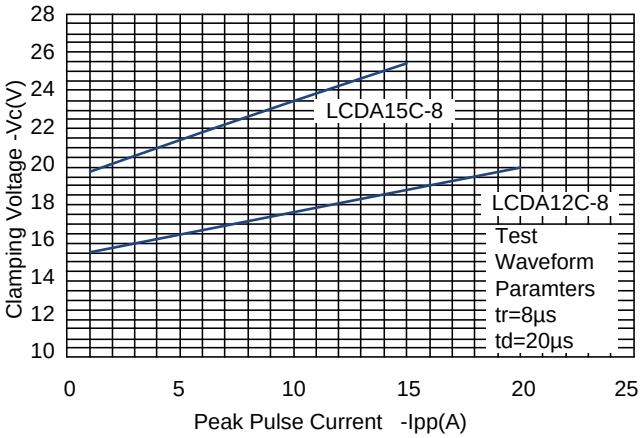
Power Derating Curve



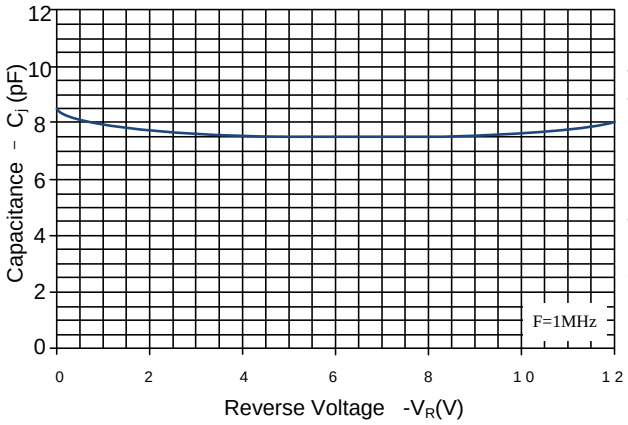
Pulse Waveform



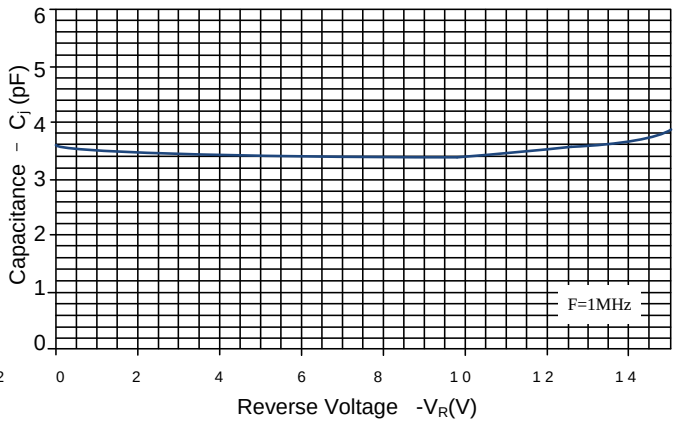
Clamping Voltage vs. Peak Pulse Current



LCDA12C-8 Capacitance vs. Reverse Voltage

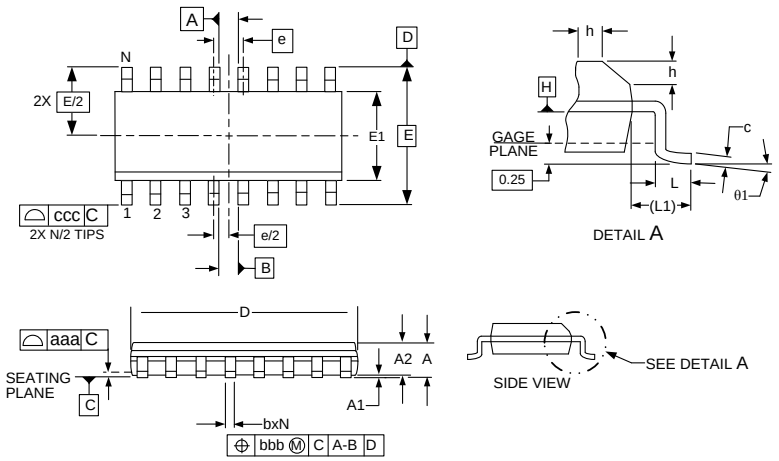


LCDA15C-8 Capacitance vs. Reverse Voltage



Outline Drawing – SO-16

PACKAGE OUTLINE



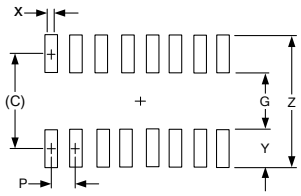
Notes

1. Controlling Dimensions in Millimeters (Angles In Degrees).
2. Datums -A- And -B- To Be Determined At Datum Plane -H-.
3. Dimensions "E1" And "D" Do Not Include Mold Flash, Protrusions Or Gate Burrs.
4. Reference JEDEC STD MS-012, Variation AC.

SO-16

DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	.053	.069
A1	0.10	0.25	.004	.010
A2	1.25	1.65	.049	.065
b	0.31	0.51	.012	.020
c	0.17	0.25	.007	.010
D	9.80	10.00	.386	.394
E1	3.80	4.00	.150	.157
E	6.00 BSC		.236 BSC	
e	1.27 BSC		.050 BSC	
h	0.25	0.50	.010	.020
L	0.40	1.04	.016	.041
L1	(1.04)		(.041)	
N	16		16	
θ 1	0°	8°	0°	8°
aaa	0.10		.004	
bbb	0.25		.010	
ccc	0.20		.008	

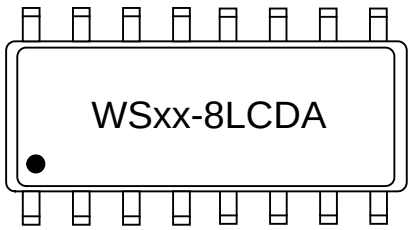


NOTES:
1. This Land Pattern Is For Reference Purposes Only. Consult Your Manufacturing Group To Ensure Your Company's Manufacturing Guidelines Are Met.
2. Reference IPC-SM-782A, RLP NO. 304A.

DIMENSIONS

SYMBOL	MILLIMETERS	INCHES
C	(5.20)	(.205)
G	3.00	.118
P	1.27	.050
X	0.60	.024
Y	2.20	.087
Z	7.40	.291

Marking Codes



XX=Reverse Stand-Off Voltage