

SOT23, BI-DIRECTIONAL, TVS DIODE ARRAY**PRODUCT DESCRIPTION**

The UMDXXB series are Bi-directional Transient Voltage Suppressor Arrays that designed to protect components which are connected to data and transmission lines against electrostatic discharge(ESD), electrical fast transients(EFT), and lightning

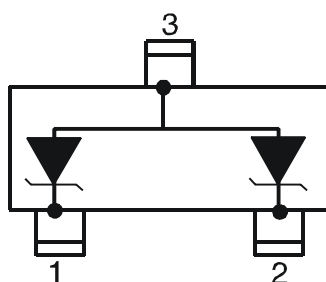
All pins are rated to withstand 20kv ESD pulses using the IEC 61000-4-2 contact discharge method, which can meet the requirement of Level 4, "Human Body Model" for air and contact discharge.

FEATURES

- ※ 500 Watts peak pulse power ($t_p=8/20\mu s$)
- ※ Low clamping voltage
- ※ Protects one bidirectional or two unidirectional lines
- ※ Working voltages: 3V, 5V, 8V, 12V, 15V, 24V, 36V
- ※ ESD Protection > 40 kilovolts
- ※ Complies with
61000-4-2(ESD):Air-15kV, Contact-8kV
61000-4-4(EFT):40A-5/50ns
61000-4-5(Surge):24A, 8/20 μs

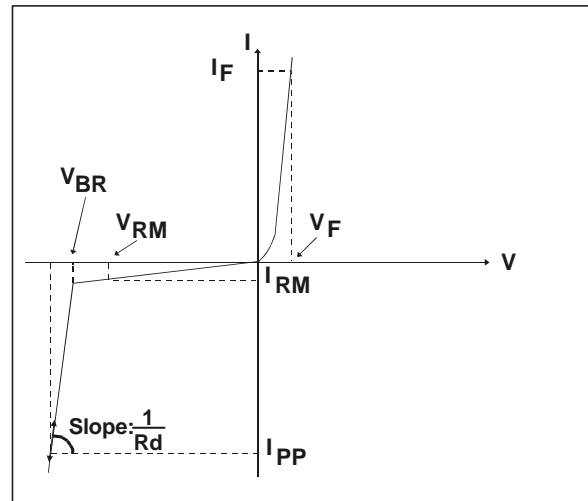
APPLICATIONS

- ※ Cellular Handsets and Accessories
- ※ Portable Electronics
- ※ Control & Monitoring Systems
- ※ Servers, Notebooks, and Desktop PCs
- ※ Set-Top Box
- ※ Communication Systems

ELECTRICAL SCHEMATIC & PIN CONFIGURATION

SOT23, BI-DIRECTIONAL, TVS DIODE ARRAY
ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$)

Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{CL}	Clamping voltage
I_{RM}	Leakage current
I_{PP}	Peak pulse current
αT	Voltage temperature coefficient
C	Capacitance
R_d	Dynamic resistance
V_F	Forward voltage drop


ABSOLUTE MAXIMUM RATING @ 25°C

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{pp}	500	Watts
Operating Temperature	T_J	-55 to +150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

UMD03B Parameter	Marking Symbol	03C				Units
		Conditions	Minimum	Typical	Maximum	
Reverse Stand-Off Voltage	V_{RM}				3.3	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	4			V
Reverse Leakage Current	I_{RM}	$V_{RM} = 3.3\text{V}, T = 25^{\circ}\text{C}$			125	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$			7	V
Clamping Voltage	V_C	$I_{PP} = 43\text{A}, t_p = 8/20\mu\text{s}$			10.9	V
Junction Capacitance	C_j	$V_R = 0\text{V}, f = 1\text{MHz}$		300		pF



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ELECTRICAL CHARACTERISTICS

UMD05B	Marking	05C				
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	6			V
Reverse Leakage Current	I_{RM}	$V_{RM} = 5.0\text{V}, T=25^\circ\text{C}$			20	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$			9.8	V
Clamping Voltage	V_C	$I_{PP} = 42\text{A}, t_P = 8/20\mu\text{s}$			13.5	V
Junction Capacitance	C_j	$V_R = 0\text{V}, f = 1\text{MHz}$		210		pF

UMD08B	Marking	08C				
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RM}				8	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	8.5			V
Reverse Leakage Current	I_{RM}	$V_{RM} = 8.0\text{V}, T=25^\circ\text{C}$			10	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$			13.4	V
Clamping Voltage	V_C	$I_{PP} = 34\text{A}, t_P = 8/20\mu\text{s}$			16.9	V
Junction Capacitance	C_j	Pin 1 to 2 $V_R = 0\text{V}, f = 1\text{MHz}$		150		pF

UMD12B	Marking	12C				
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	13.3			V
Reverse Leakage Current	I_{RM}	$V_{RM} = 12.0\text{V}, T=25^\circ\text{C}$			2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$			19	V
Clamping Voltage	V_C	$I_{PP} = 21\text{A}, t_P = 8/20\mu\text{s}$			25.9	V
Junction Capacitance	C_j	$V_R = 0\text{V}, f = 1\text{MHz}$		90		pF



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ELECTRICAL CHARACTERISTICS

UMD15B		Marking	15C			
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RM}				15	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	16.7			V
Reverse Leakage Current	I_{RM}	$V_{RM} = 15.0V, T=25^{\circ}C$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1A, t_P = 8/20\mu S$			24	V
Clamping Voltage	V_C	$I_{PP} = 17A, t_P = 8/20\mu S$			30	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$		60		pF

UMD24B		Marking	24C			
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RM}				24	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	26.7			V
Reverse Leakage Current	I_{RM}	$V_{RM} = 24V, T=25^{\circ}C$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1A, t_P = 8/20\mu S$			43	V
Clamping Voltage	V_C	$I_{PP} = 12A, t_P = 8/20\mu S$			49	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$		63		pF

UMD36B		Marking	36C			
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RM}				36	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	40			V
Reverse Leakage Current	I_{RM}	$V_{RM} = 36V, T=25^{\circ}C$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1A, t_P = 8/20\mu S$			51	V
Clamping Voltage	V_C	$I_{PP} = 9A, t_P = 8/20\mu S$			76.8	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$		60		pF

TYPICAL CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

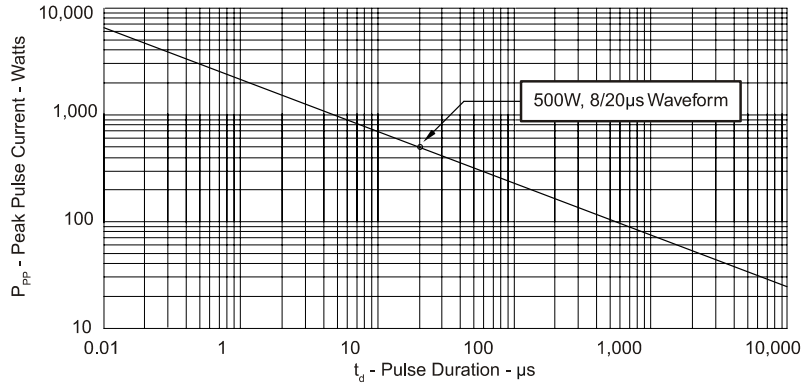


FIGURE 2
PULSE WAVE FORM

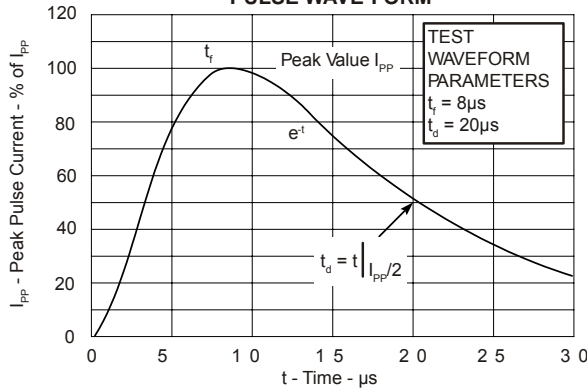
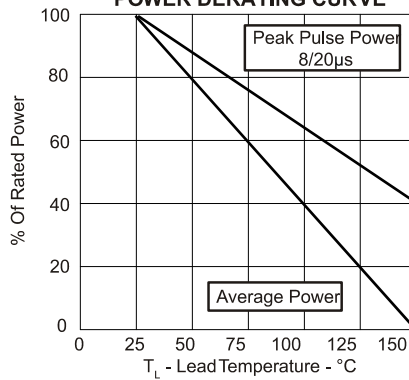


FIGURE 3
POWER DERATING CURVE



PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE

PACKAGE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.89	1.11	0.0350	0.0440
D	0.37	0.50	0.0150	0.0200
G	1.78	2.04	0.0701	0.0807
H	0.013	0.100	0.0005	0.0040
J	0.085	0.177	0.0034	0.0070
K	0.45	0.60	0.0180	0.0236
L	0.89	1.02	0.0350	0.0401
S	2.10	2.50	0.0830	0.0984
V	0.45	0.60	0.0177	0.0236

MOUNTING PAD

NOTES

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).

ORDERING INFORMATION

Ordering Part Number	Package	T & P	Polarity
UMD03B ~ UMD36B	SOT - 23	EIA - 481	Bi-Directional

TAPE & REEL SPECIFICATIONS

Ordering Part Number	Diode Size (in mm)	Qty Per Reel
UMD03B ~ UMD36B	2.92mm ± 0.12 x 2.30 ± 0.2	3000 pcs/Reel