



USM712

TVS

TWO-DIRECTIONAL ESD / TRANSIENT PROTECTION DIODE

DESCRIPTION

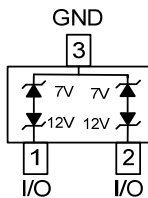
The UTC **USM712** is TVS Diode Array is designed to protect RS-485 applications with asymmetrical working voltages (-7V to 12V) from damage due to electrostatic discharge (ESD), electrical fast transients (EFT), and lightning induced surges.

The **USM712** can absorb repetitive ESD strikes above the aximum level specified in the IEC61000-4-2 international standard without performance degradation and safely issipate up to 7A of 8/20us induced surge current (IEC61000-4-5 2nd edition) with very low clamping voltages.

FEATURES

- * 150W peak pulse power(8/20μs)
- * Operating Voltages: 7V to 12V
- * Low clamping voltage
- * Low leakage current

SYMBOL

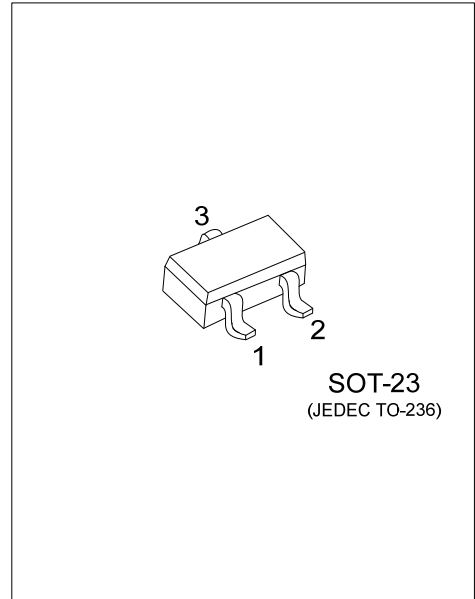
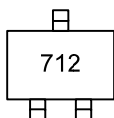


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
USM712L-AE3-R	USM712G-AE3-R	SOT-23	I/O	I/O	GND	Tape Reel

USM712G-AE3-R	(1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
ESD Discharge	IEC61000-4-2	Air Discharge	V_{ESD}	± 30	kV
		Contact Discharge		± 30	kV
Peak Pulse Current	IEC61000-4-5	$t_p=8/20\mu\text{s}$	I_{PP}	7	A
Peak Pulse Power			P_{PK}	150	W
Operating Junction Temperature			T_{J}	-55 ~ +125	°C
Operating Temperature			T_{OPR}	-40 ~ +125	°C
Storage Temperature			T_{STG}	-55 ~ +150	°C

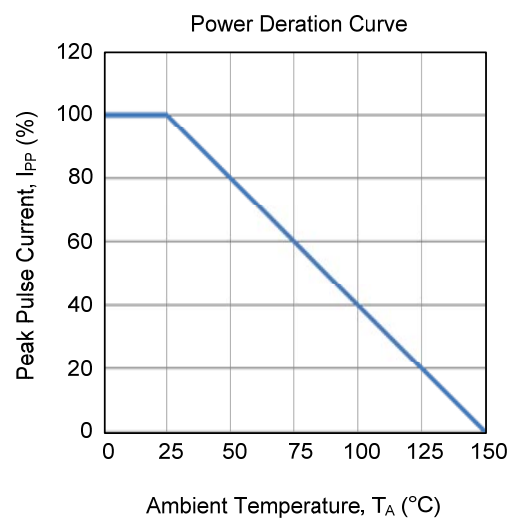
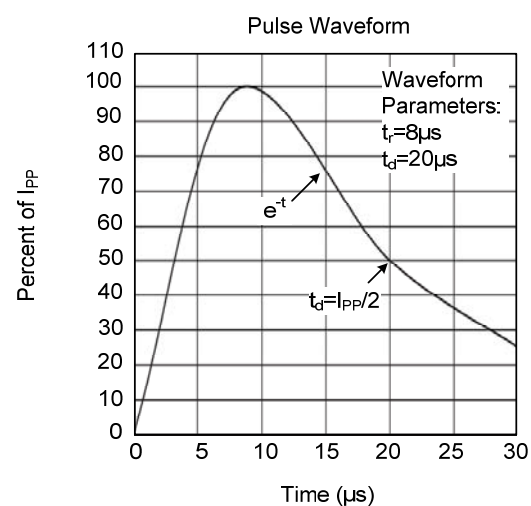
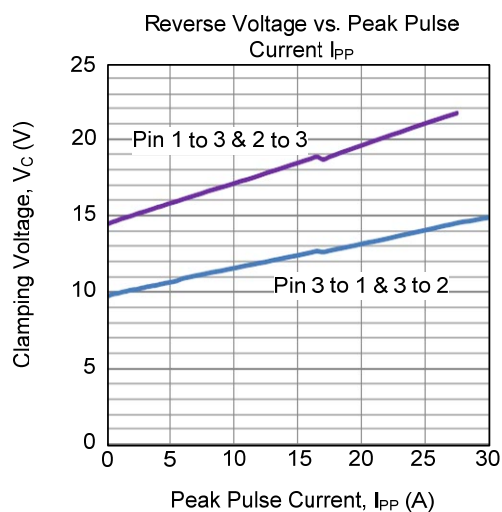
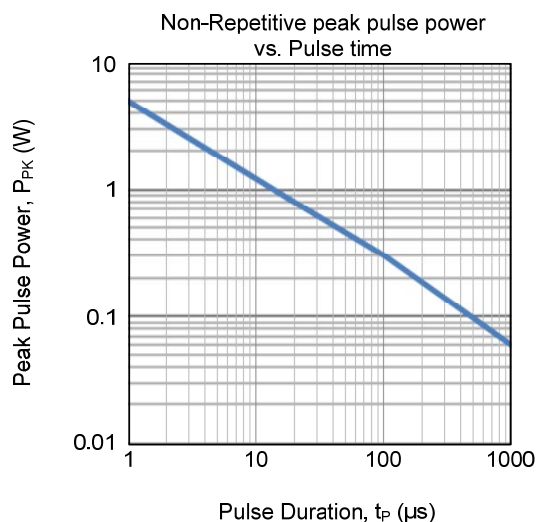
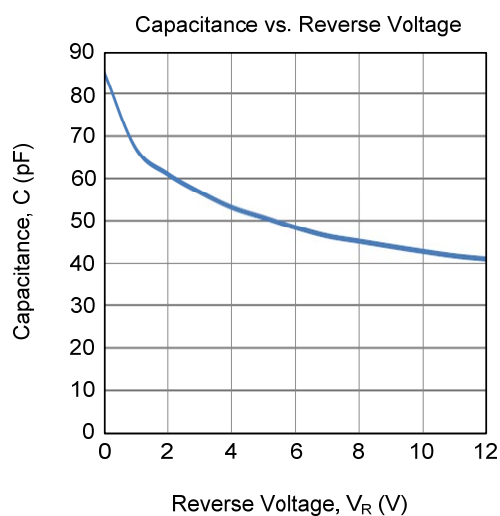
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reverse Stand-Off Voltage	V_{RWM}	Pin 3 to Pin 1 and Pin 3 to Pin 2			7	V
		Pin 1 to Pin 3 and Pin 2 to Pin 3			12	V
Reverse Breakdown Voltage	V_{BR}	$I_{\text{R}}=1\text{mA}$, Pin 3 to Pin 1 and Pin 3 to Pin 2	7.5			V
		$I_{\text{R}}=1\text{mA}$, Pin 1 to Pin 3 and Pin 2 to Pin 3	13.3			V
Reverse Current	I_{R}	$V_{\text{R}}=V_{\text{RWM}}$		0.01	0.5	μA
Diode capacitance	C_{d}	$V_{\text{R}}=0\text{V}$, $f=1\text{MHz}$		85		pF
		$V_{\text{R}}=V_{\text{RWM}}$, $f=1\text{MHz}$		60		pF
Clamping Voltage	V_{CL}	$I_{\text{PP}}=1\text{A}$, $t_p=8/20\mu\text{s}$, Pin 3 to Pin 1 and Pin 3 to Pin 2			11	V
		$I_{\text{PP}}=1\text{A}$, $t_p=8/20\mu\text{s}$, Pin 1 to Pin 3 and Pin 2 to Pin 3			19	V
		$I_{\text{PP}}=7\text{A}$, $t_p=8/20\mu\text{s}$, Pin 3 to Pin 1 and Pin 3 to Pin 2			15	V
		$I_{\text{PP}}=7\text{A}$, $t_p=8/20\mu\text{s}$, Pin 1 to Pin 3 and Pin 2 to Pin 3			25	V

Note: Device stressed with 8/20 μs exponential decay waveform according to IEC 61000-4-5.

TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.