UMW DUP3105SOQ-7

1.Features

This new generation TVS is designed to meet the stringent requirements of Auto-motive Applications and to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal to protect LIN and CAN transceiver from ESD, EMI and other harmful transient voltage events.

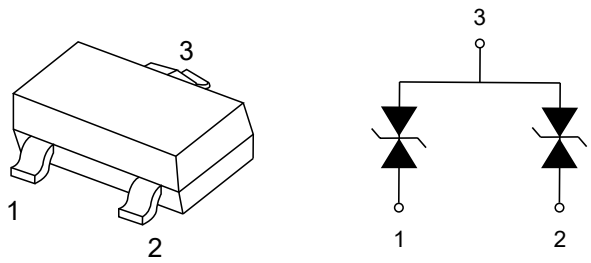
2.Features

- 350W Peak Power Dissipation Per Line (8/20μs Waveform)
- Air ±30kV, Contact ±30kV
  2 Channels of ESD Protection
- Low Channel Input Capacitance
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. “Green” Device (Note 3)

3.Mechanical Data

- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.009 grams (Approximate)
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe

4.Pinning information



SOT-23

5.Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Symbol	Value	Units
Peak Pulse Power Dissipation	8/20μs, Per in Fig. 1	P_{PP}	350	W
Peak Pulse Current	8/20μs, Per in Fig. 1	I_{PP}	8	A
ESD Protection – Contact Discharge	Standard IEC 61000-4-2	$V_{ESD\_Contact}$	±30	kV
ESD Protection – Air Discharge	Standard IEC 61000-4-2	V_{ESD_Air}	±30	kV

6.Thermal Characteristics

Parameter	Symbol	Value	Units
Package Power Dissipation (Note 6)	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature Range	T_J,T_{STG}	-65 to 150	°C

7.Electrical Characteristic (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Reverse Stand off Voltage	V_{RWM}				32	V
Channel Leakage Current (Note 7)	I_{RM}	V_{RWM}=32V		10	100	nA
Clamping Voltage, Positive Transients	V_{CL}	I_{PP}=5A, t_p=8/20μs, Figure 1			59	V
		I_{PP}=8A, t_p=8/20μs, Figure 1			66	V
Breakdown Voltage	V_{BR}	I_R=1mA	35.6			V
Differential Resistance	R_{DIF}	I_R=1A, t_p=8/20μs		0.4		Ω
Channel Input Capacitance	C_T	V_R=0V, f=1MHz			30	pF

Notes:

1. Device mounted on FR-4 PCB pad layout (2oz copper).

2. Short duration pulse test used to minimize self-heating effect.

8.Typical characteristic

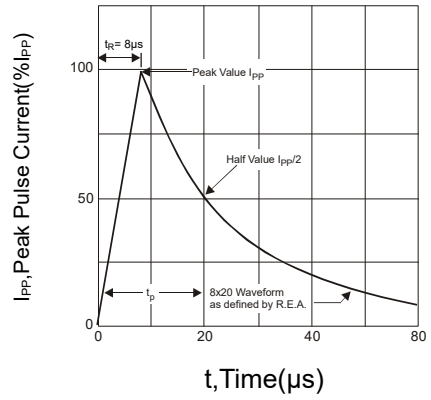


Figure 1: Typical 8 x 20μs Pulse Waveform

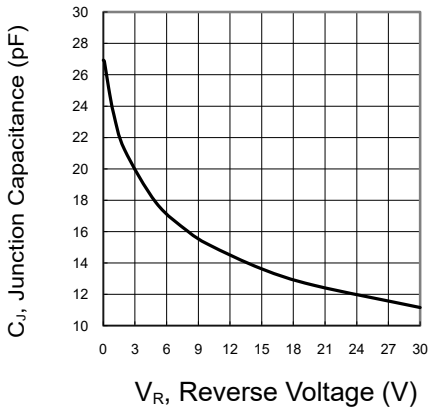


Figure 2: Typical Junction Capacitance

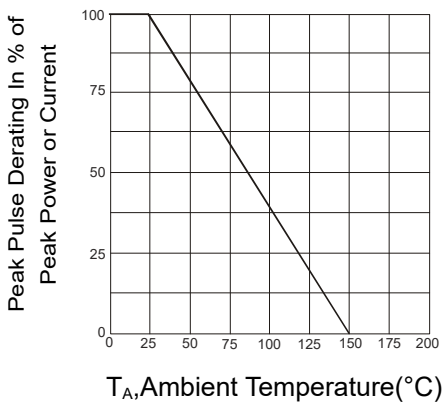


Figure 3: Power Dissipation vs. Ambient Temperature

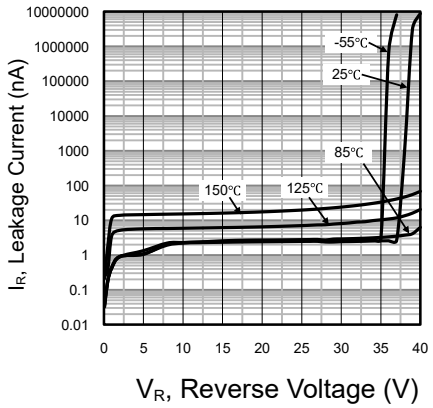
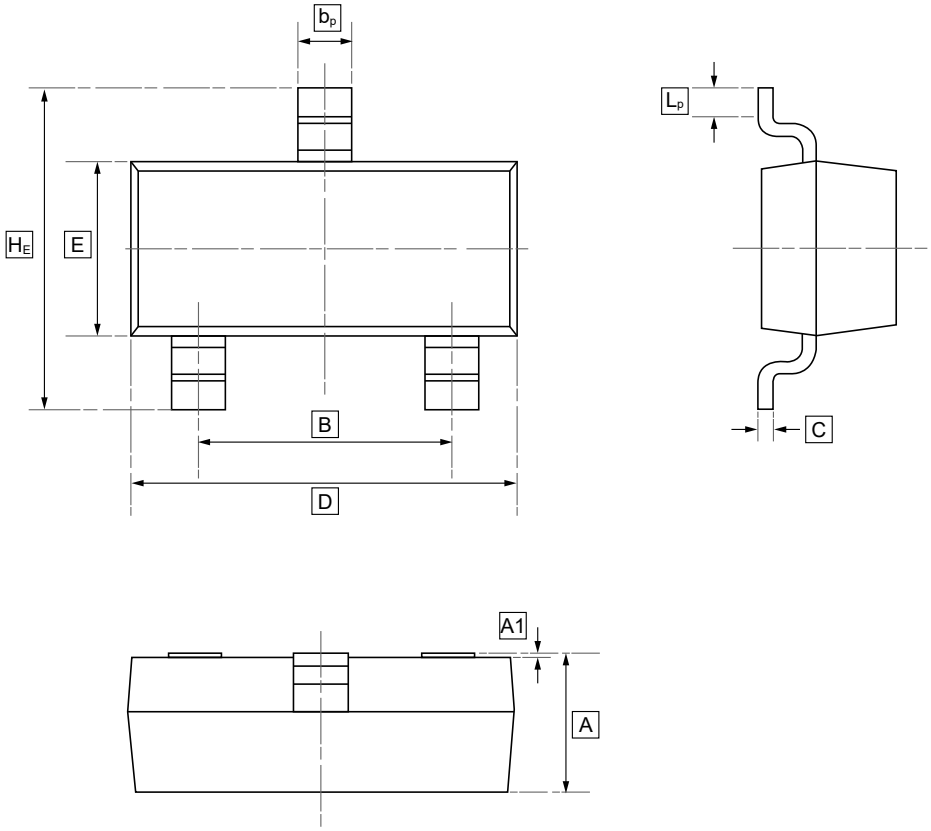


Figure 4: Typical Reverse Characteristics

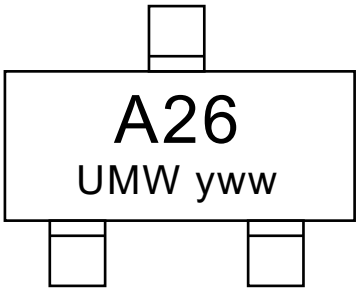
9.SOT-23 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	b_p	C	D	E	H_E	A1	L_p
Min	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20
Max	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50

10.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW DUP3105SOQ-7	SOT-23	3000	Tape and reel

11.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

When applying our products, please do not exceed the maximum rated values, as this may affect the reliability of the entire system. Under certain conditions, any semiconductor product may experience faults or failures. Buyers are responsible for adhering to safety standards and implementing safety measures during system design, prototyping, and manufacturing when using our products to prevent potential failure risks that could lead to personal injury or property damage.

Unless explicitly stated in writing, UMW products are not intended for use in medical, life-saving, or life-sustaining applications, nor for any other applications where product failure could result in personal injury or death. If customers use or sell the product for such applications without explicit authorization, they assume all associated risks.

When reselling, applying, or exporting, please comply with export control laws and regulations of China, the United States, the United Kingdom, the European Union, and other relevant countries, regions, and international organizations.

This document and any actions by UMW do not grant any intellectual property rights, whether express or implied, by estoppel or otherwise. The product names and marks mentioned herein may be trademarks of their respective owners.