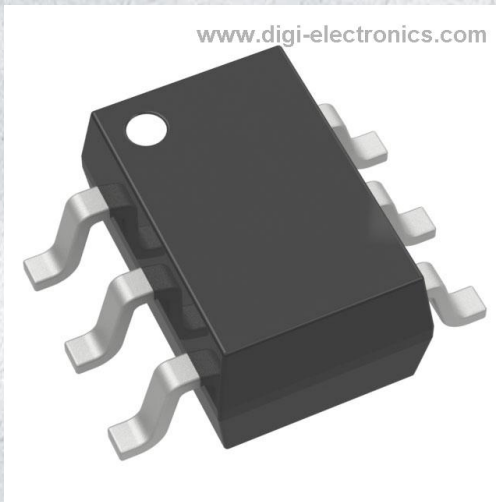


# DMP2075UVT-7 Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	DMP2075UVT-7-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	DMP2075UVT-7
Description	MOSFET P-CH 20V 3.8A TSOT26 T&R
Detailed Description	P-Channel 20 V 3.8A (Ta) 1.2W (Ta) Surface Mount TSOT-26



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.

## Purchase and inquiry

Manufacturer Product Number:

DMP2075UVT-7

Series:

-

FET Type:

P-Channel

Drain to Source Voltage (Vdss):

20 V

Drive Voltage (Max Rds On, Min Rds On):

2.5V, 4.5V

Vgs(th) (Max) @ Id:

1V @ 250 $\mu$ A

Vgs (Max):

$\pm$ 8V

FET Feature:

-

Operating Temperature:

-55°C ~ 150°C (Tj)

Supplier Device Package:

TSOT-26

Base Product Number:

DMP2075

Manufacturer:

Diodes Incorporated

Product Status:

Active

Technology:

MOSFET (Metal Oxide)

Current - Continuous Drain (Id) @ 25°C:

3.8A (Ta)

Rds On (Max) @ Id, Vgs:

75mOhm @ 4A, 4.5V

Gate Charge (Qg) (Max) @ Vgs:

8.8 nC @ 4.5 V

Input Capacitance (Ciss) (Max) @ Vds:

642 pF @ 10 V

Power Dissipation (Max):

1.2W (Ta)

Mounting Type:

Surface Mount

Package / Case:

SOT-23-6 Thin, TSOT-23-6

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



DMP2075UVT

P-CHANNEL ENHANCEMENT MODE MOSFET

## Product Summary

BV <sub>DSS</sub>	R <sub>DS(ON)</sub> max	I <sub>D</sub> max T <sub>A</sub> = +25°C
-20V	75mΩ @ V <sub>GS</sub> = -4.5V	-3.8A
	137mΩ @ V <sub>GS</sub> = -2.5V	-2.8A

## Description

This new generation MOSFET is designed to minimize the on-state resistance (R<sub>DS(ON)</sub>) yet maintain superior switching performance, which makes it ideal for high-efficiency power management applications.

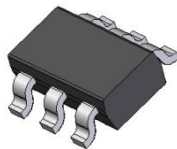
## Applications

- General Purpose Interfacing Switch
- Power Management Functions



ESD PROTECTED

TSOT26



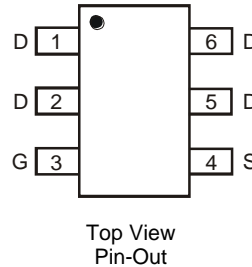
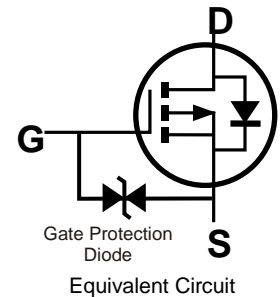
Top View

## Features and Benefits

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- ESD Protected Gate
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: TSOT26
- Case Material: Molded Plastic, "Green" Molding Compound.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe.  
Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.015 grams (Approximate)

Top View  
Pin-OutGate Protection  
Diode  
Equivalent Circuit

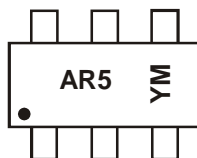
## Ordering Information (Note 4)

Part Number	Case	Packaging
DMP2075UVT-7	TSOT26	3000/Tape & Reel
DMP2075UVT-13	TSOT26	10,000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  - See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

TSOT26



AR5 = Product Type Marking Code  
 YM = Date Code Marking  
 Y or  $\bar{Y}$  = Year (ex: F = 2018)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2018	2019	2020	2021	2022	2023	2024	2025	2026
Code	F	G	H	I	J	K	L	M	N

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D



DMP2075UVT

### Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	-20	V
Gate-Source Voltage			V <sub>GSS</sub>	±8	V
Continuous Drain Current (Note 6) V <sub>GS</sub> = -4.5V	Steady State	T <sub>A</sub> = +25°C	I <sub>D</sub>	-3.8	A
		T <sub>A</sub> = +70°C		-3.0	
Maximum Continuous Body Diode Forward Current (Note 6)			I <sub>S</sub>	-2.1	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I <sub>DM</sub>	-25	A

### Thermal Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)		P <sub>D</sub>	1.2	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R <sub>θJA</sub>	105	°C/W
Total Power Dissipation (Note 6)		P <sub>D</sub>	1.6	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R <sub>θJA</sub>	77	°C/W
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

### Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 7)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-20	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250µA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	-1	µA	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±10	µA	V <sub>GS</sub> = ±8.0V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 7)</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	-0.3	—	-1.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250µA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	—	75	mΩ	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.0A
		—	—	137		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3.5A
Diode Forward Voltage	V <sub>SD</sub>	—	—	-1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1.0A
<b>DYNAMIC CHARACTERISTICS (Note 8)</b>						
Input Capacitance	C <sub>iss</sub>	—	642	—	pF	V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	98	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	87	—	pF	
Gate Resistance	R <sub>g</sub>	—	26.5	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1.0MHz
Total Gate Charge	Q <sub>g</sub>	—	8.8	—	nC	V <sub>GS</sub> = -4.5V, V <sub>DS</sub> = -10V I <sub>D</sub> = -4A
Gate-Source Charge	Q <sub>gs</sub>	—	0.9	—	nC	
Gate-Drain Charge	Q <sub>gd</sub>	—	2.9	—	nC	
Turn-On Delay Time	t <sub>D(ON)</sub>	—	5.5	—	ns	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -4.5V, R <sub>D</sub> = 2.5Ω, R <sub>G</sub> = 3.0Ω, I <sub>D</sub> = -1A
Turn-On Rise Time	t <sub>R</sub>	—	22.6	—	ns	
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	34.1	—	ns	
Turn-Off Fall Time	t <sub>F</sub>	—	34.3	—	ns	
Reverse Recovery Time	t <sub>RR</sub>	—	13	—	ns	
Reverse Recovery Charge	Q <sub>RR</sub>	—	3.3	—	nC	I <sub>F</sub> = -1.0A, di/dt = 100A/µs

- Notes:
5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
  6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
  7. Short duration pulse test used to minimize self-heating effect.
  8. Guaranteed by design. Not subject to product testing.



**DMP2075UVT**

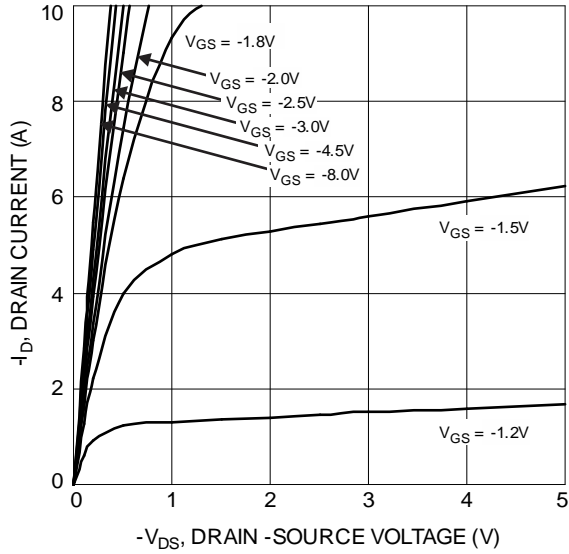


Figure 1 Typical Output Characteristics

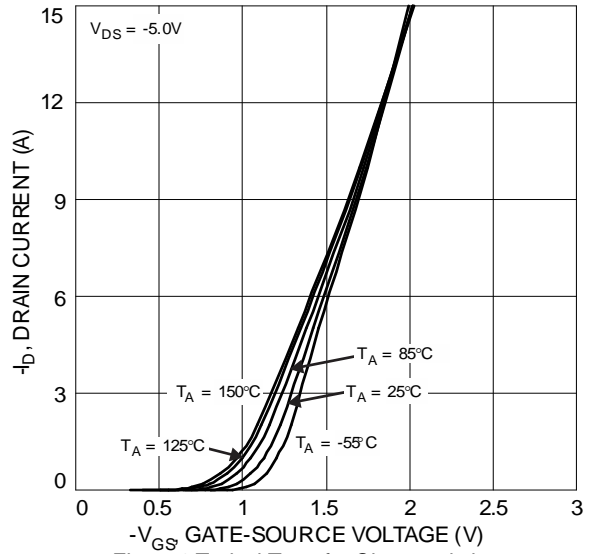


Figure 2 Typical Transfer Characteristics

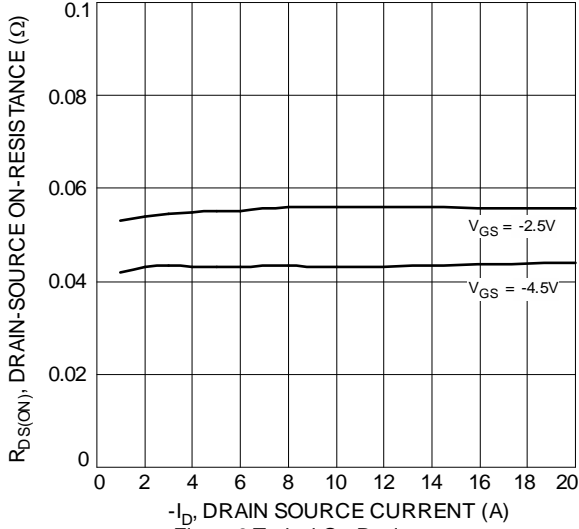


Figure 3 Typical On-Resistance vs. Drain Current and Gate Voltage

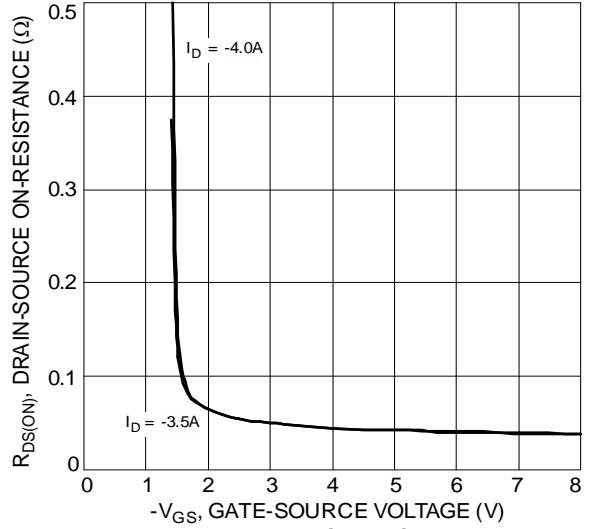


Figure 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

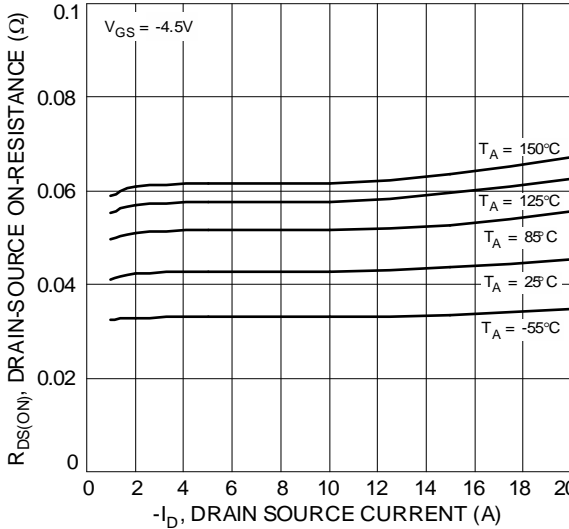


Figure 5 Typical On-Resistance vs. Drain Current and Temperature

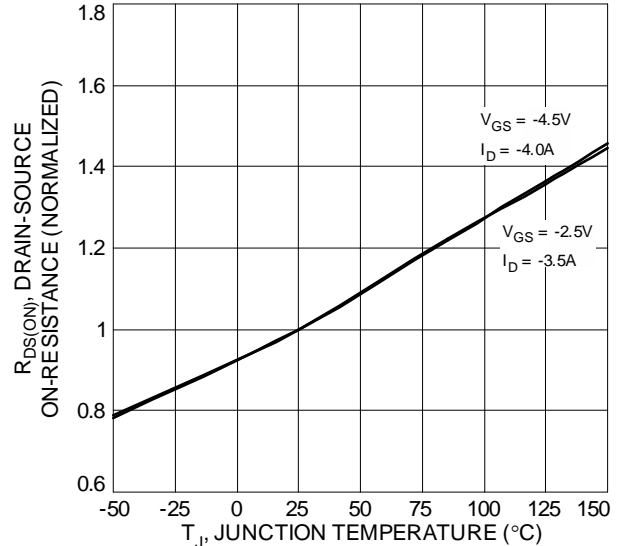


Figure 6 On-Resistance Variation with Temperature



**DMP2075UVT**

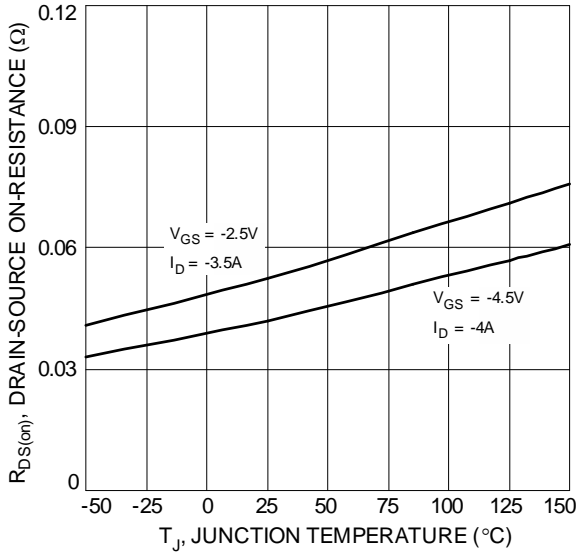


Figure 7 On-Resistance Variation with Temperature

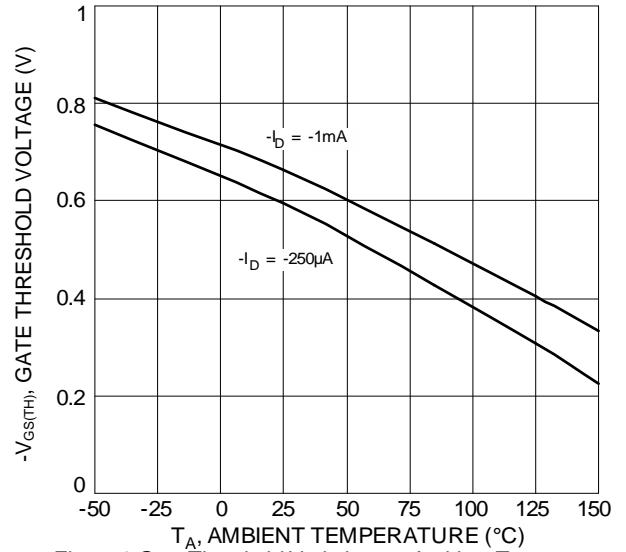


Figure 8 Gate Threshold Variation vs. Ambient Temperature

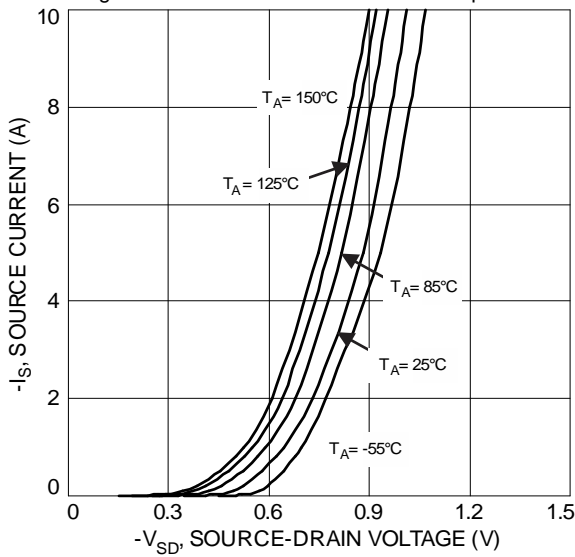


Figure 9 Diode Forward Voltage vs. Current

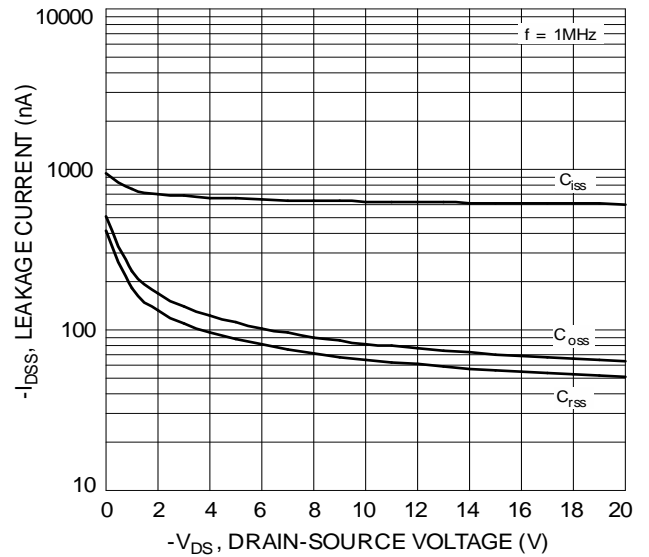


Figure 10 Typical Junction Capacitance

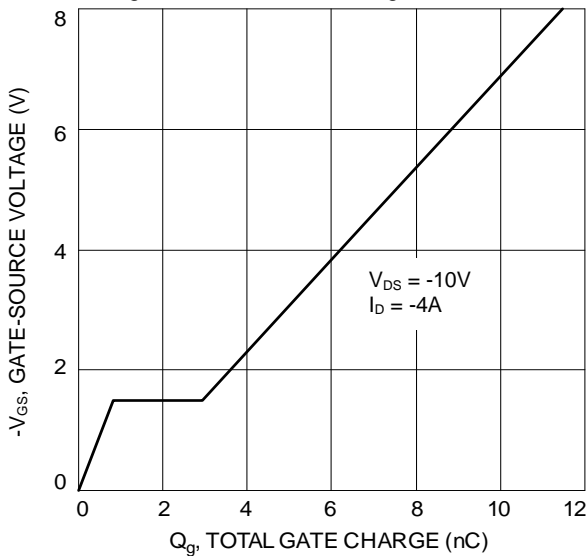


Figure 11 Gate Charge

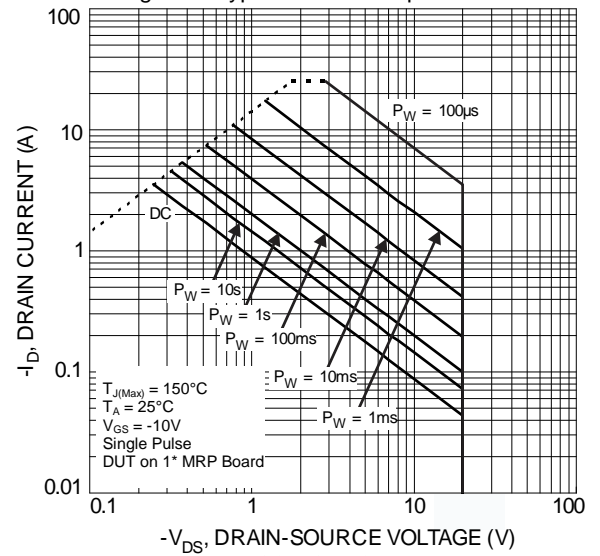
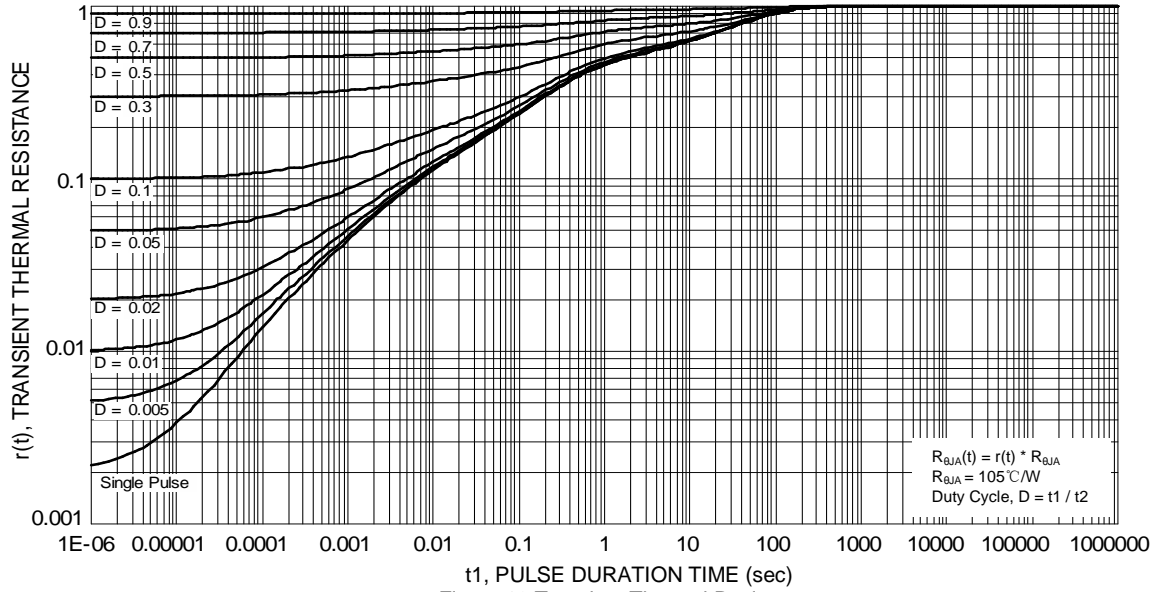


Figure 12 SOA, Safe Operation Area



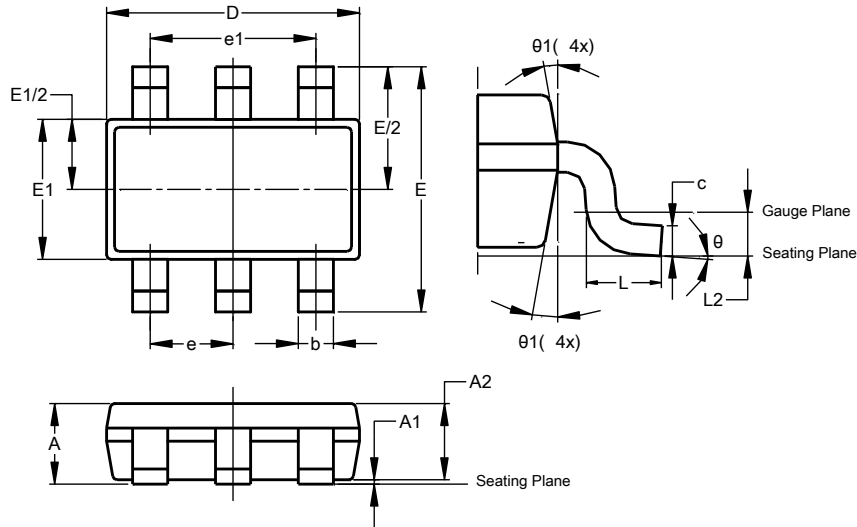
DMP2075UVT



## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### TSOT26

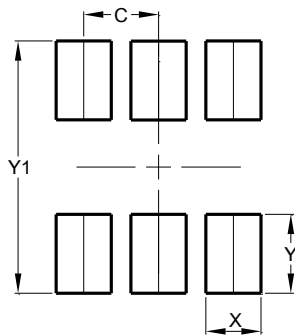


TSOT26			
Dim	Min	Max	Typ
A	–	1.00	–
A1	0.010	0.100	–
A2	0.840	0.900	–
D	2.800	3.000	2.900
E	2.800 BSC		
E1	1.500	1.700	1.600
b	0.300	0.450	–
c	0.120	0.200	–
e	0.950 BSC		
e1	1.900 BSC		
L	0.30	0.50	–
L2	0.250 BSC		
$\theta$	0°	8°	4°
$\theta1$	4°	12°	–
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### TSOT26



Dimensions	Value (in mm)
C	0.950
X	0.700
Y	1.000
Y1	3.199





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