

Product Summary

BV_{DSS}	$R_{DS(ON)}$ Max	I_D Max $T_A = +25^\circ C$
-30V	50m Ω @ $V_{GS} = -10V$	-4.5A
	75m Ω @ $V_{GS} = -4.5V$	-3.7A

Description

This MOSFET is designed to minimize the on-state resistance ($R_{DS(ON)}$) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

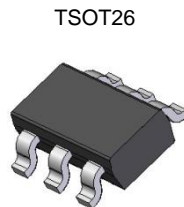
- Backlighting
- Power Management Functions
- DC-DC Converters

Features

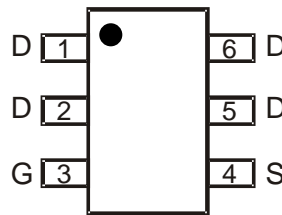
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

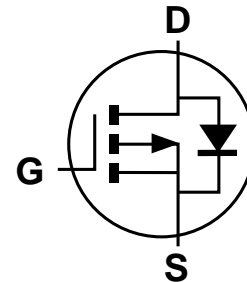
- Case: TSOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See Diagram
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.013grams (Approximate)



Top View



Device Schematic



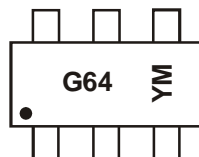
Equivalent Circuit

Ordering Information (Note 4)

Part Number	Case	Packaging
DMP3050LVT-7	TSOT26	3000/Tape & Reel

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

Marking Information



G64 = Product Type Marking Code
 YM = Date Code Marking
 Y or \bar{Y} = Year (ex: D = 2016)
 M = Month (ex: 9 = September)

Date Code Key

Year	2011	~	2016	2017	2018	2019	2020	2021	2022
Code	Y	~	D	E	F	G	H	I	J

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

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Drain-Source Voltage	V _{DSS}	-30	V	
Gate-Source Voltage (Note 5)	V _{GSS}	±25	V	
Continuous Drain Current (Note 6) V _{GS} = -10V	Steady State	T _A = +25°C T _A = +70°C	-4.5 -3.5	A
	t < 10s	T _A = +25°C T _A = +70°C	-5.2 -4.1	A
Maximum Continuous Body Diode Forward Current (Note 6)	I _S	-2	A	
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)	I _{DM}	-25	A	

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Total Power Dissipation (Note 6)	P _D	T _A = +25°C	1.6	W
		T _A = +70°C	1.0	
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	Steady State	78	°C/W
		t < 10s	49	
Thermal Resistance, Junction to Case (Note 6)	R _{θJC}	13		
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C	

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	-30	-	-	V	V _{GS} = 0V, I _D = -250µA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	-1	µA	V _{DS} = -30V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	-1.0	-	-2.0	V	V _{DS} = V _{GS} , I _D = -250µA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	36	50	mΩ	V _{GS} = -10V, I _D = -4.5A
		-	56	75		V _{GS} = -4.5V, I _D = -3A
Forward Transfer Admittance	Y _{fs}	-	7.2	-	S	V _{DS} = -5V, I _D = -5A
Diode Forward Voltage	V _{SD}	-	-0.7	-1.0	V	V _{GS} = 0V, I _S = -1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{ISS}	-	620	-	pF	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{OSS}	-	83	-	pF	
Reverse Transfer Capacitance	C _{RSS}	-	62	-	pF	
Gate Resistance	R _g	-	10.8	-	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1.0MHz
Total Gate Charge (V _{GS} = -4.5V)	Q _g	-	5.1	-	nC	V _{DS} = -15V, I _D = -6A
Total Gate Charge (V _{GS} = -10V)	Q _g	-	10.5	-	nC	
Gate-Source Charge	Q _{gs}	-	1.8	-	nC	
Gate-Drain Charge	Q _{gd}	-	1.9	-	nC	
Turn-On Delay Time	t _{D(ON)}	-	6.8	-	ns	V _{DD} = -15V, V _{GS} = -10V, R _g = 6Ω, I _D = -1A
Turn-On Rise Time	t _R	-	4.9	-	ns	
Turn-Off Delay Time	t _{D(OFF)}	-	28.4	-	ns	
Turn-Off Fall Time	t _F	-	12.4	-	ns	

- Notes:
- AEC-Q101 V_{GS} maximum is ±20V.
 - Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

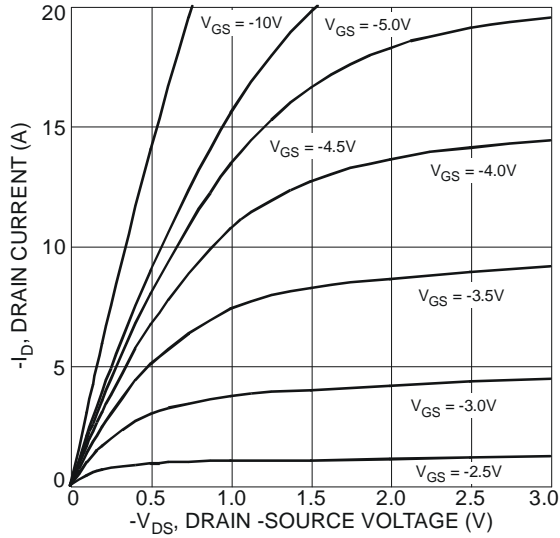


Fig. 1 Typical Output Characteristics

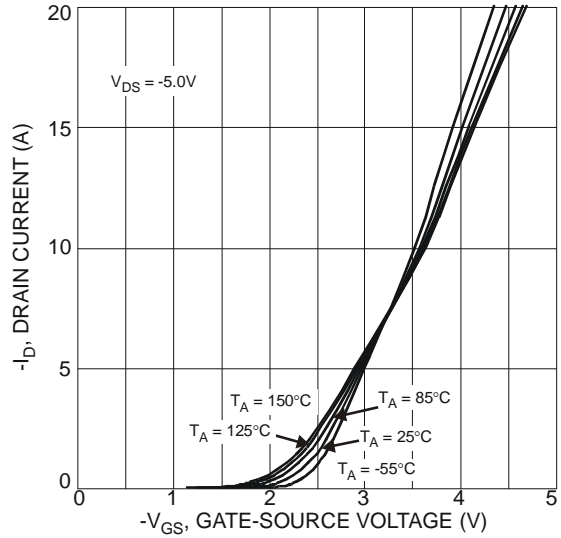


Fig. 2 Typical Transfer Characteristics

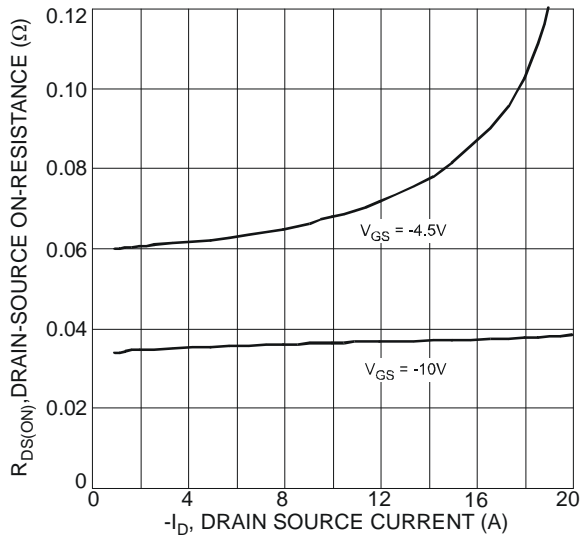


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

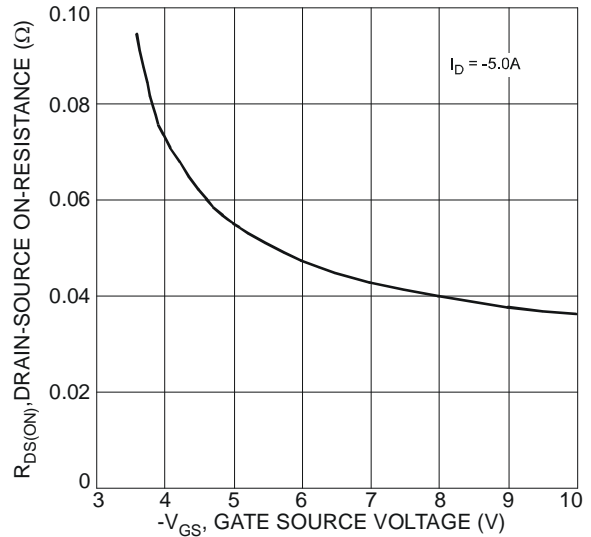


Fig. 4 Typical On-Resistance vs. Drain Current and Gate Voltage

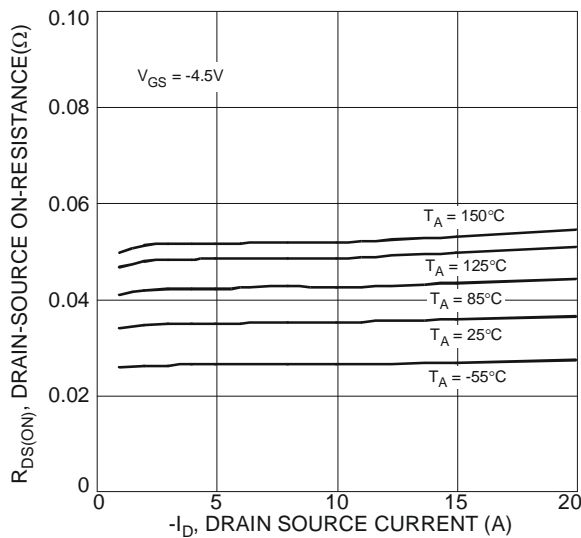


Fig. 5 Typical On-Resistance vs. Drain Current and Temperature

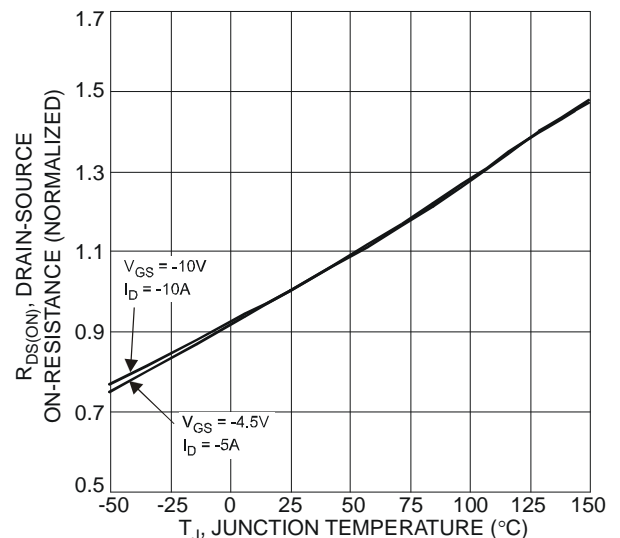


Fig. 6 On-Resistance Variation with Temperature

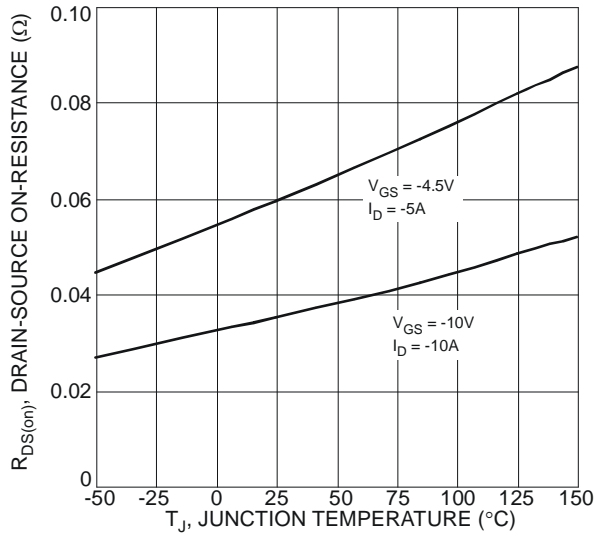


Fig. 7 On-Resistance Variation with Temperature

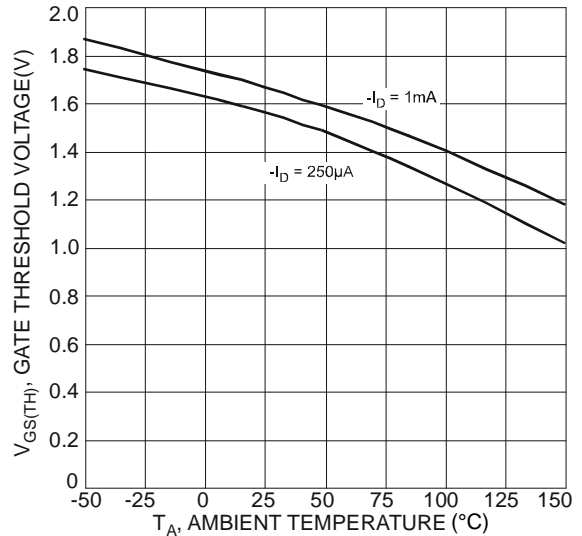


Fig. 8 Gate Threshold Variation vs. Ambient Temperature

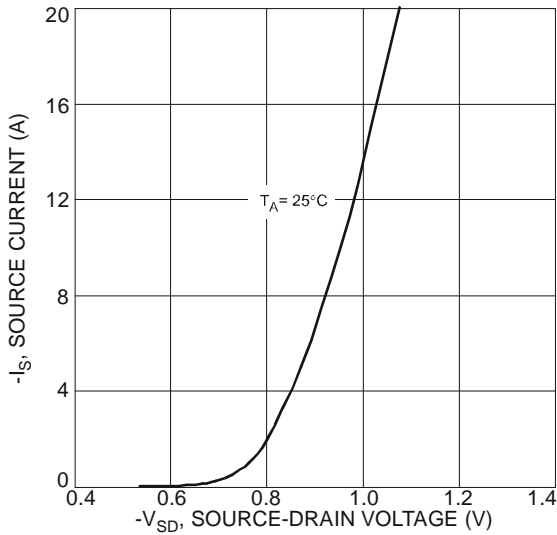


Fig. 9 Diode Forward Voltage vs. Current

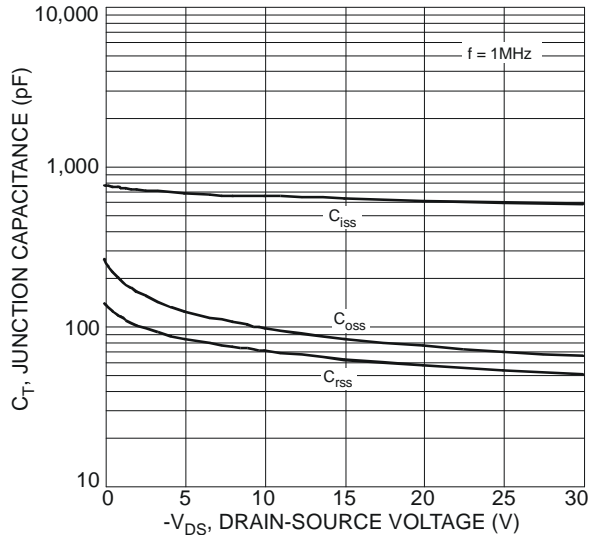


Fig. 10 Typical Junction Capacitance

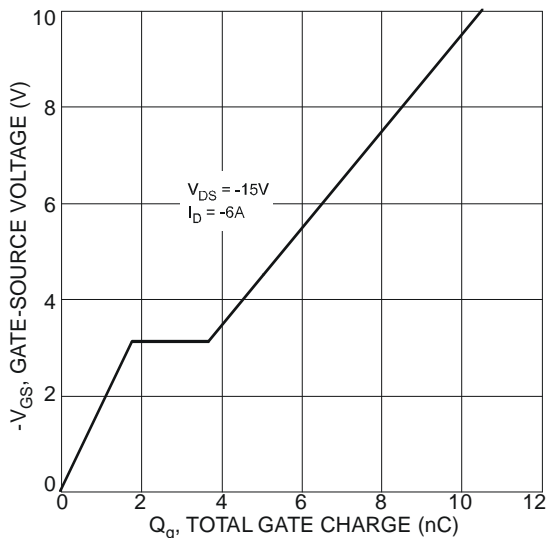


Fig. 11 Gate-Charge Characteristics

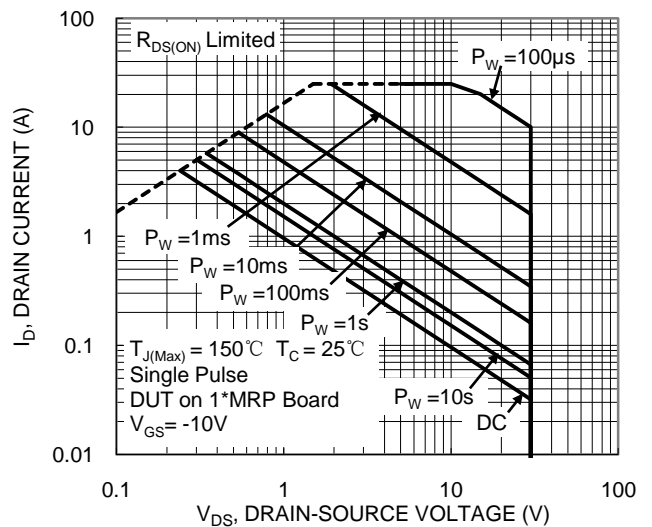


Figure 12. SOA, Safe Operation Area

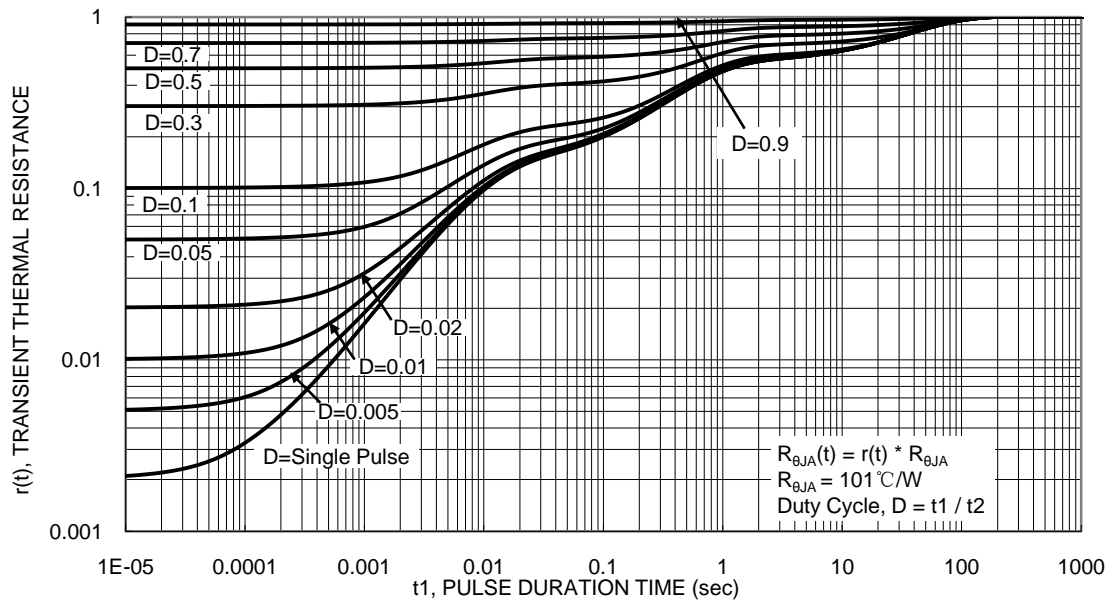
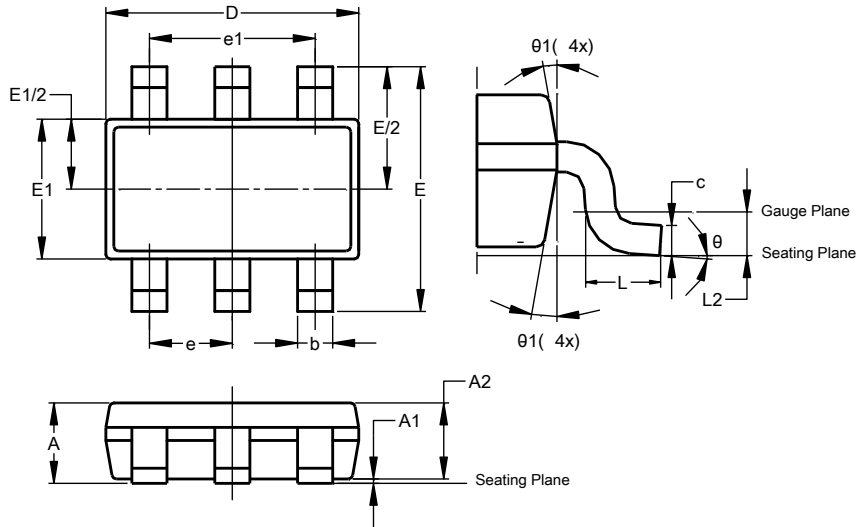


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

TSOT26

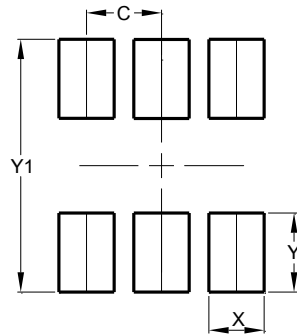


TSOT26			
Dim	Min	Max	Typ
A	-	1.00	-
A1	0.010	0.100	-
A2	0.840	0.900	-
D	2.800	3.000	2.900
E	2.800 BSC		
E1	1.500	1.700	1.600
b	0.300	0.450	-
c	0.120	0.200	-
e	0.950 BSC		
e1	1.900 BSC		
L	0.30	0.50	-
L2	0.250 BSC		
θ	0°	8°	4°
θ1	4°	12°	-
All Dimensions in mm			

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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