

DUAL N-CHANNEL ENHANCEMENT MODE MOSFET
Product Summary

BV_{DSS}	$R_{DS(ON)}$	I_D $T_A = +25^\circ\text{C}$
30V	60mΩ @ $V_{GS} = 10\text{V}$	3.6A
	100mΩ @ $V_{GS} = 4.5\text{V}$	2.7A

Description

This new generation 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
- DC-DC Converters
- Power Management Functions

Features and Benefits

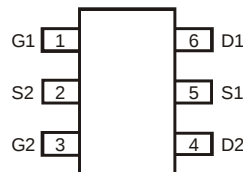
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

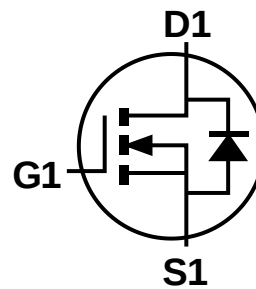
- Case: TSOT26
- Case Material: Molded Plastic, "Green" Molding Compound.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe.
Solderable per MIL-STD-202, Method 208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



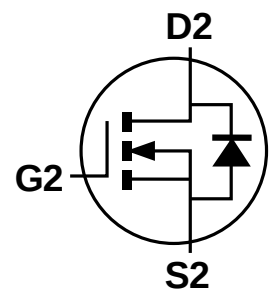
Top View



Top View



Q1 N-Channel

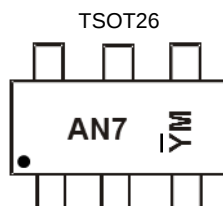


Q2 N-Channel

Ordering Information (Note 4)

Part Number	Case	Packaging
DMN3060LVT-7	TSOT26	3,000 / Tape & Reel
DMN3060LVT-13	TSOT26	10,000 / Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. 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.
 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information


AN7 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: G = 2019)
 M = Month (ex: 9 = September)

Date Code Key

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

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			V _{GSS}	±12	V
Continuous Drain Current (Note 6) V _{GS} = 4.5V	Steady State	T _A = +25°C T _A = +70°C	I _D	3.6 2.8	A
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	1.1	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	16	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	0.83	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	R _{θJA}	151	°C/W
Power Dissipation (Note 6)	P _D	1.16	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 6)	R _{θJA}	108	°C/W
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}	—	—	1.0	μA	V _{DS} = 24V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.7	—	1.8	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	42	60	mΩ	V _{GS} = 10V, I _D = 3.1A
			45	100		V _{GS} = 4.5V, I _D = 2A
			48	150		V _{GS} = 3.3V, I _D = 1.5A
Diode Forward Voltage	V _{SD}	—	0.8	1.0	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	—	395	—	pF	V _{DS} = 15V, V _{GS} = 0V, f = 1.2MHz
Output Capacitance	C _{oss}	—	39	—		
Reverse Transfer Capacitance	C _{rss}	—	26	—		
Gate Resistance	R _g	—	3.1	—	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz
Total Gate Charge (V _{GS} = 4.5V)	Q _g	—	5.6	—	nC	V _{DS} = 15V, V _{GS} = 4.5V, I _D = 3.1A
Total Gate Charge (V _{GS} = 10V)	Q _g	—	11.3	—		
Gate-Source Charge	Q _{gs}	—	0.2	—		
Gate-Drain Charge	Q _{gd}	—	1.8	—		
Turn-On Delay Time	t _{D(ON)}	—	5.8	—	ns	V _{GS} = 10V, V _{DS} = 15V, R _G = 3Ω, R _L = 4.7Ω
Turn-On Rise Time	t _R	—	30.8	—		
Turn-Off Delay Time	t _{D(OFF)}	—	18.3	—		
Turn-Off Fall Time	t _F	—	2.7	—		

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

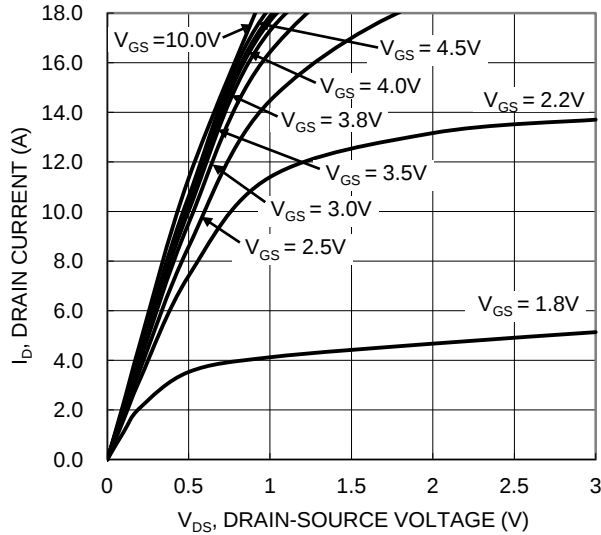


Figure 1. Typical Output Characteristic

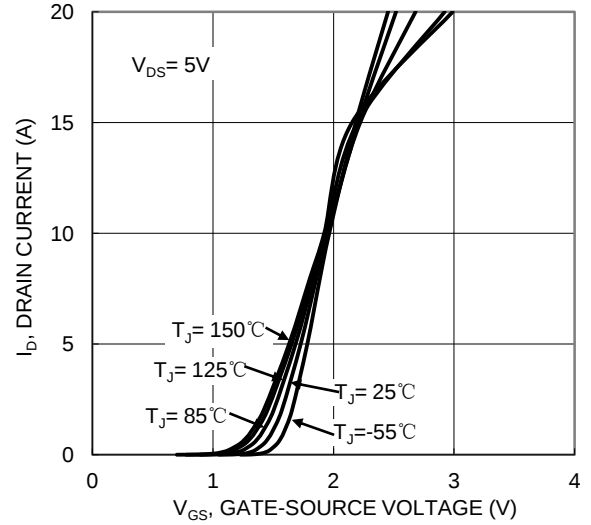


Figure 2. Typical Transfer Characteristic

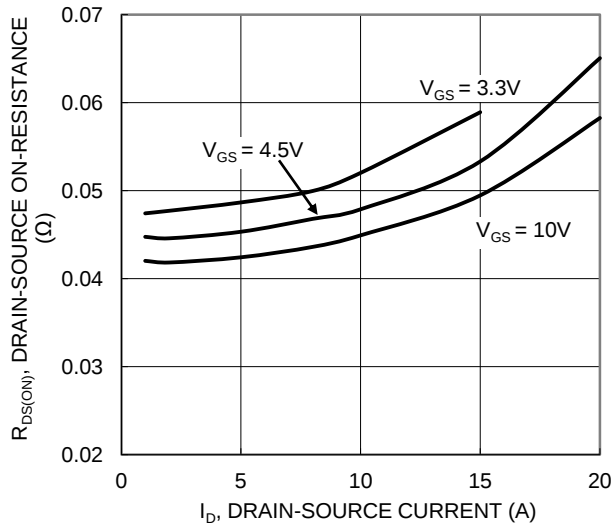


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

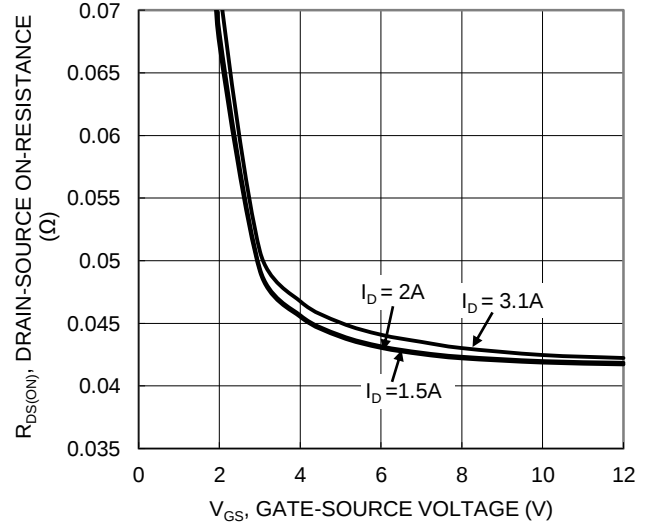


Figure 4. Typical Transfer Characteristic

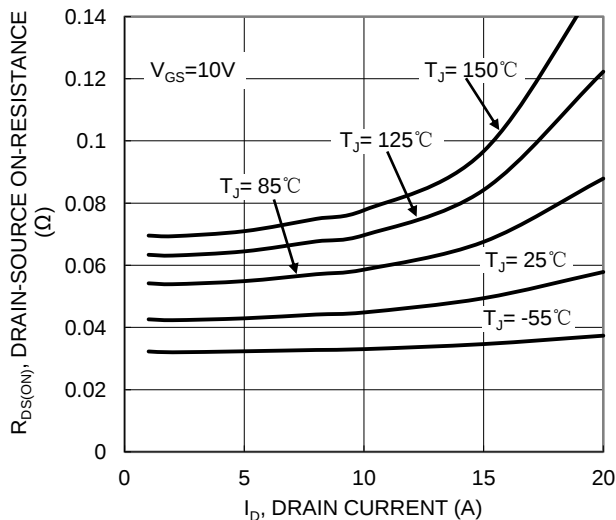


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

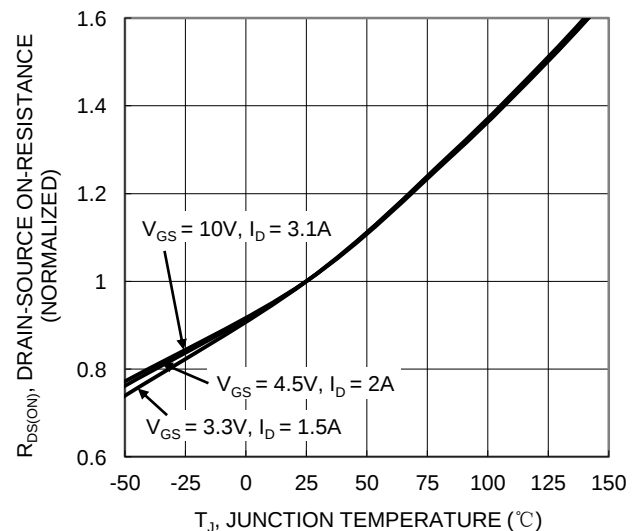
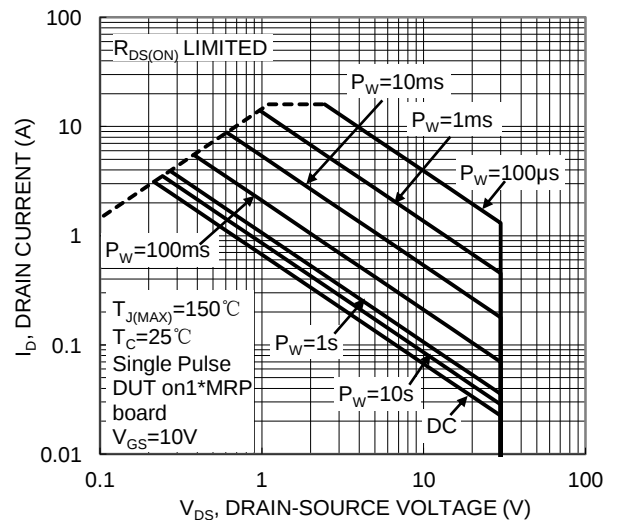
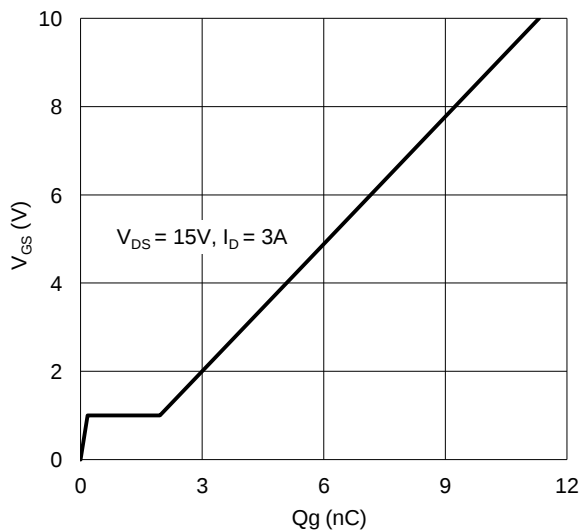
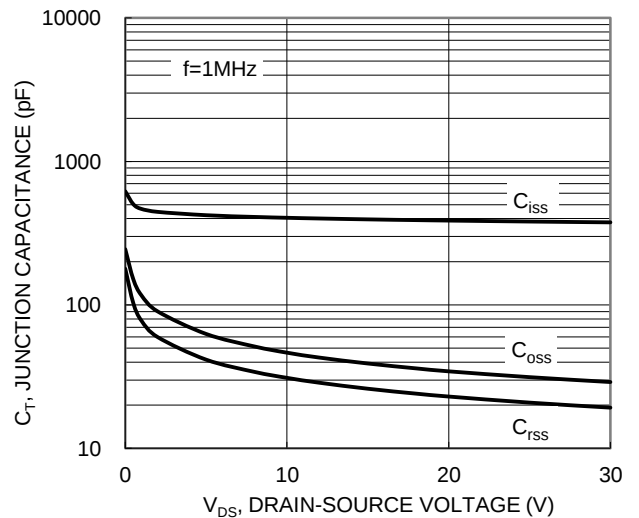
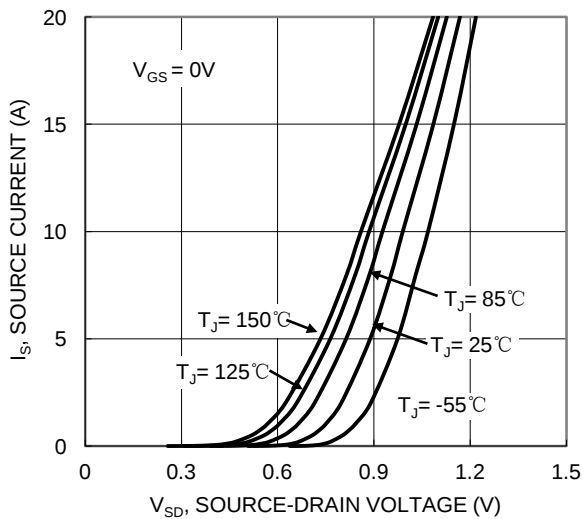
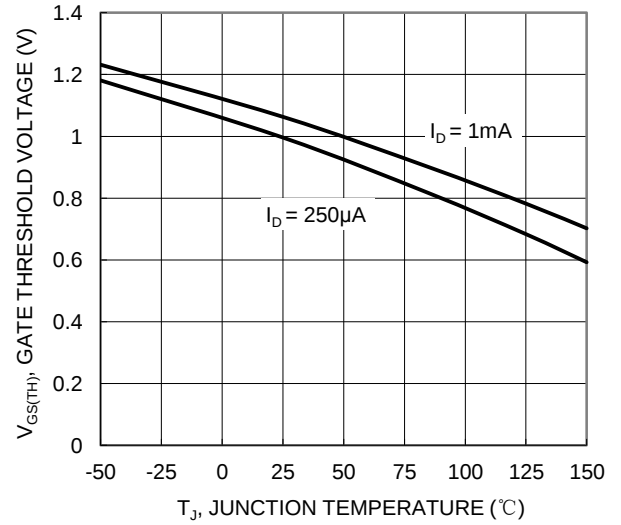
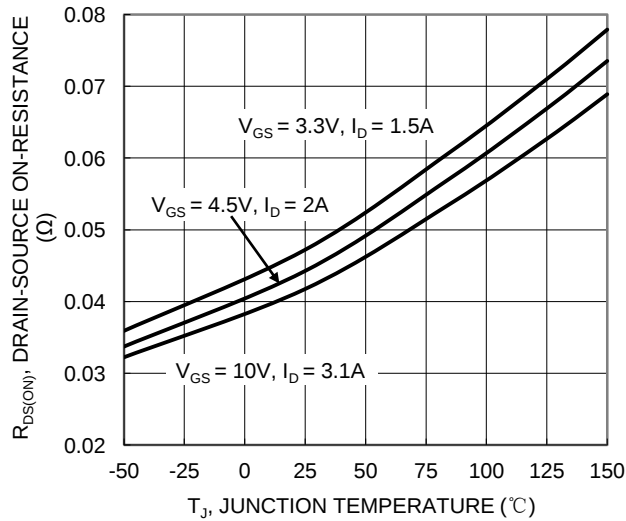


Figure 6. On-Resistance Variation with Temperature



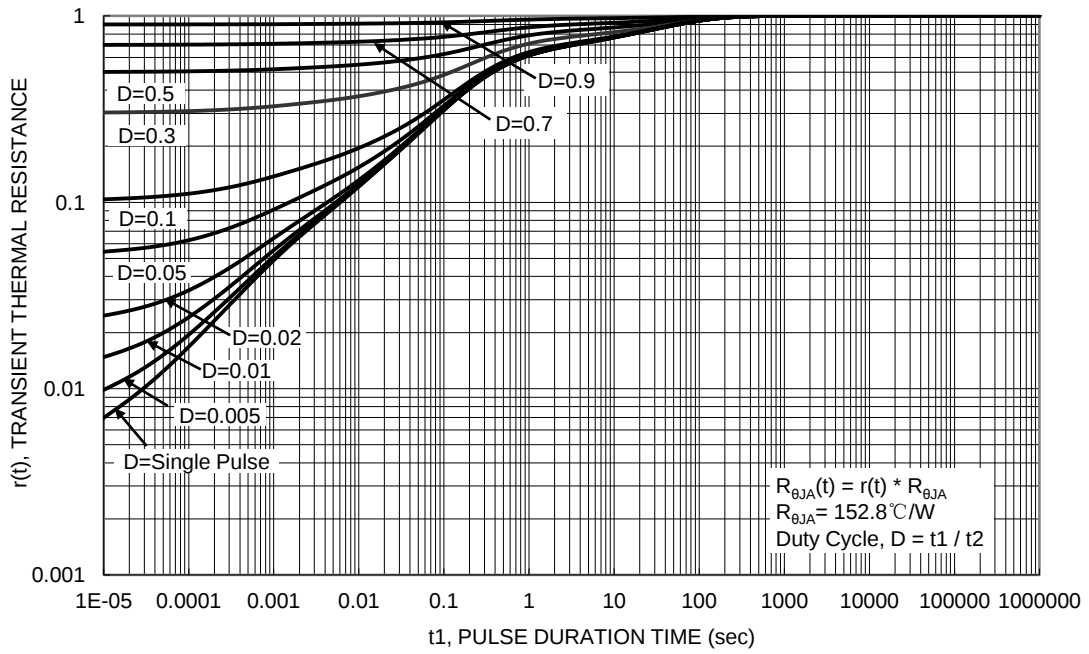
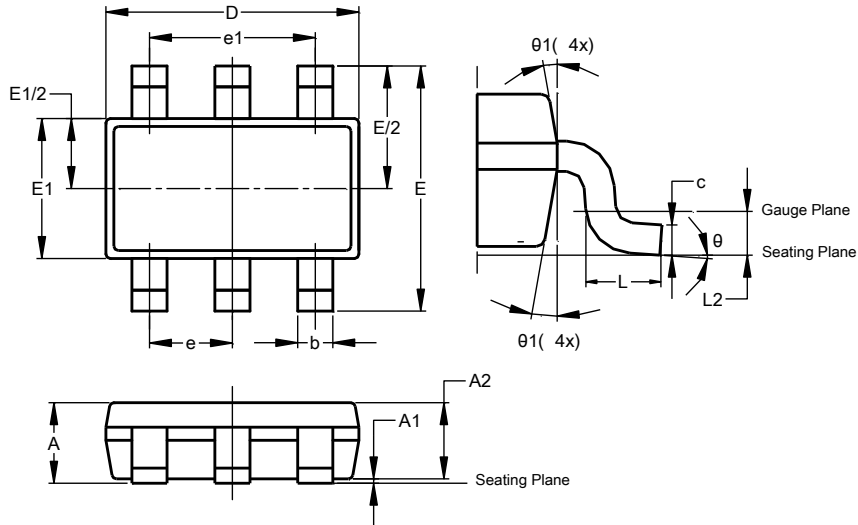


Figure 13. Transient Thermal Resistance

Package Outline Dimensions

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

TSOT26

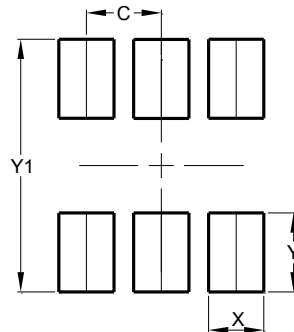


TSOT26			
Dim	Min	Max	Typ
A	—	1.00	—
A1	0.010	0.100	—
A2	0.840	0.900	—
D	2.800	3.000	2.900
E	2.800 BSC		
E1	1.500	1.700	1.600
b	0.300	0.450	—
c	0.120	0.200	—
e	0.950 BSC		
e1	1.900 BSC		
L	0.30	0.50	—
L2	0.250 BSC		
θ	0°	8°	4°
θ1	4°	12°	—
All Dimensions in mm			

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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