Product Summary

BV_{DSS}	$R_{DS(ON)}$ max	I_D T_A = +25°C
-30V	75mΩ @ V_{GS} = -10V	-3.9A
	98mΩ @ V_{GS} = -4.5V	-3.3A

Features and Benefits

- Low Input Capacitance
- Low On-Resistance
- Fast Switching Speed
- Low Input/Output Leakage
- **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**

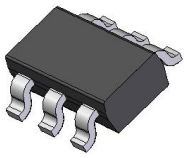
Description and Applications

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.

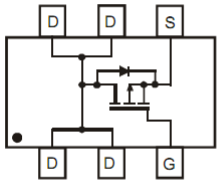
- DC-DC Converters
- Power Management Functions
- Backlighting
- Motor Control

Mechanical Data

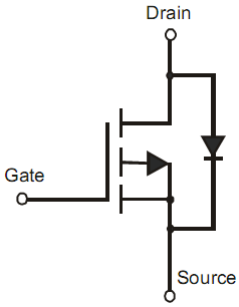
- Case: TSOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208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



Top View



TOP VIEW
Internal Schematic

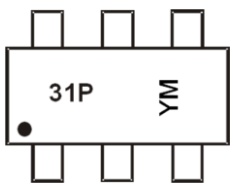


Ordering Information (Note 4)

Part Number	Case	Packaging
DMP3105LVT-7	TSOT26	3,000/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



31P = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: F = 2018)
M = Month (ex: 9 = September)

Date Code Key

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	E	F	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 5) V_{GS} = -10V	Steady State	T_A = +25°C T_A = +70°C	I_D	-3.1 -2.5	A
Continuous Drain Current (Note 5) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	-2.7 -2.2	A
Continuous Drain Current (Note 6) V_{GS} = -10V	Steady State	T_A = +25°C T_A = +70°C	I_D	-3.9 -3.1	A
Continuous Drain Current (Note 6) V_{GS} = -4.5V	Steady State	T_A = +25°C T_A = +70°C	I_D	-3.3 -2.7	A
Maximum Continuous Body Diode Forward Current			I_S	-2.2	A
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			I_{DM}	-20	A

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

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P_D	1.15	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	108	°C/W
Total Power Dissipation (Note 6)	P_D	1.75	W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	72	°C/W
Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	23.4	°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}	—	—	-100	nA	V_{DS} = -30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±100	nA	V_{GS} = ±12V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(TH)}$	-0.5	-0.9	-1.5	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	65	75	mΩ	V_{GS} = -10V, I_D = -4.2A
		—	75	98		V_{GS} = -4.5V, I_D = -4.0A
		—	98	150		V_{GS} = -2.5V, I_D = -3.0A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	5	—	S	V_{DS} = -15V, I_D = -4.0A
Diode Forward Voltage	V_{SD}	—	-0.7	-1.0	V	V_{GS} = 0V, I_S = -1A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	839	—	pF	V_{DS} = -15V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	47	—		
Reverse Transfer Capacitance	C_{rss}	—	43	—		
Gate Resistance	R_G	—	12.3	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
Total Gate Charge (V_{GS} = -4.5V)	Q_g	—	9.0	—	nC	V_{DS} = -15V, I_D = -4.0A
Total Gate Charge (V_{GS} = -10.0V)	Q_g	—	19.8	—		
Gate-Source Charge	Q_{gs}	—	1.6	—		
Gate-Drain Charge	Q_{gd}	—	1.1	—		
Turn-On Delay Time	$t_{D(ON)}$	—	9.7	—	ns	V_{GS} = -10V, V_{DD} = -15V, R_G = 6Ω, I_D = -1A
Turn-On Rise Time	t_R	—	17.7	—		
Turn-Off Delay Time	$t_{D(OFF)}$	—	269	—		
Turn-Off Fall Time	t_F	—	64	—		

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

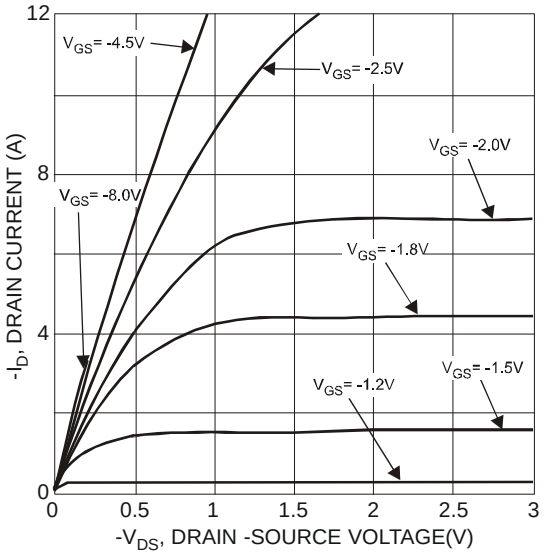


Fig. 1 Typical Output Characteristics

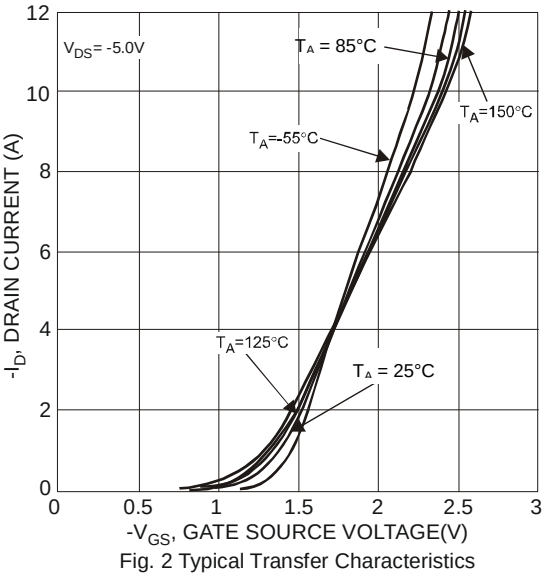


Fig. 2 Typical Transfer Characteristics

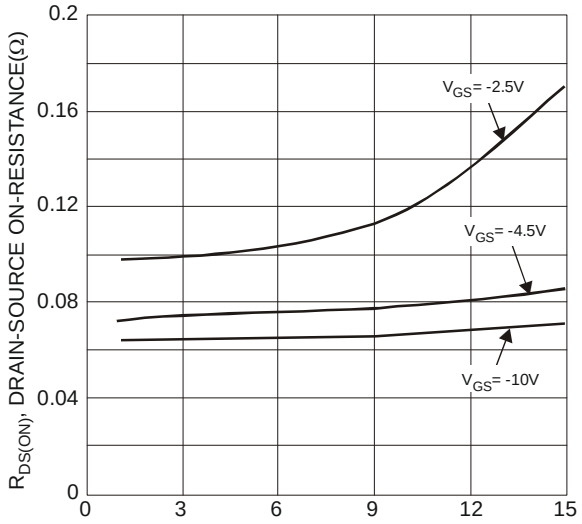


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

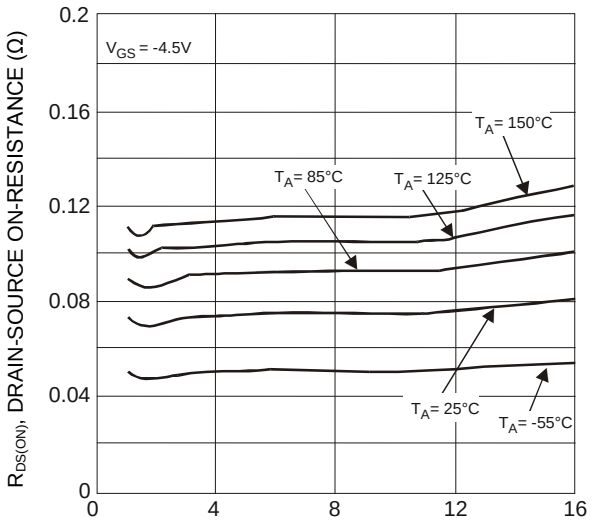


Fig. 4 Typical On-Resistance vs. Drain Current and Temperature

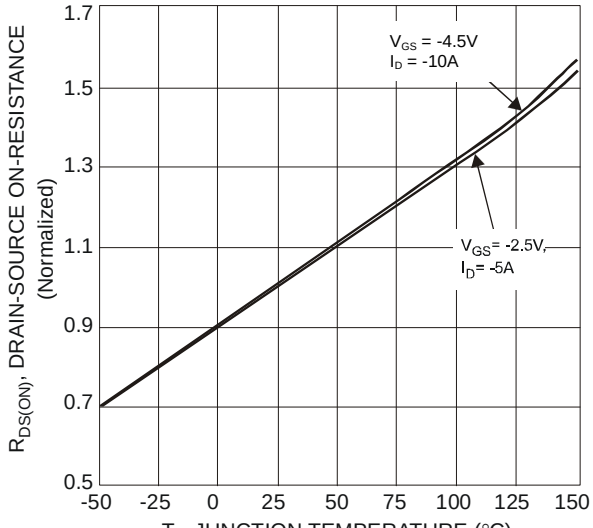


Fig. 5 On-Resistance Variation with Temperature

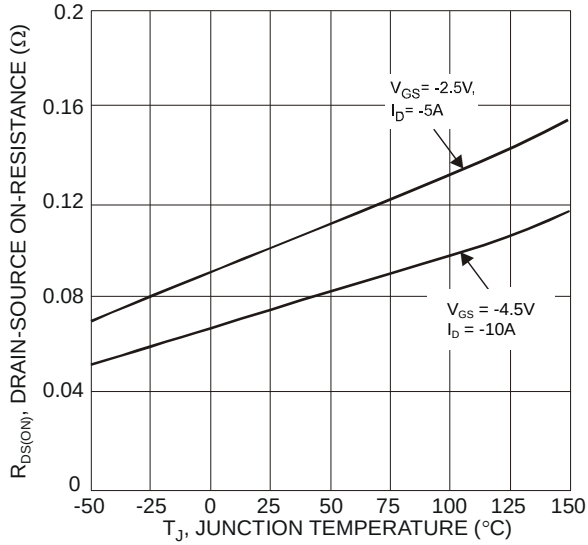


Fig. 6 On-Resistance Variation with Temperature

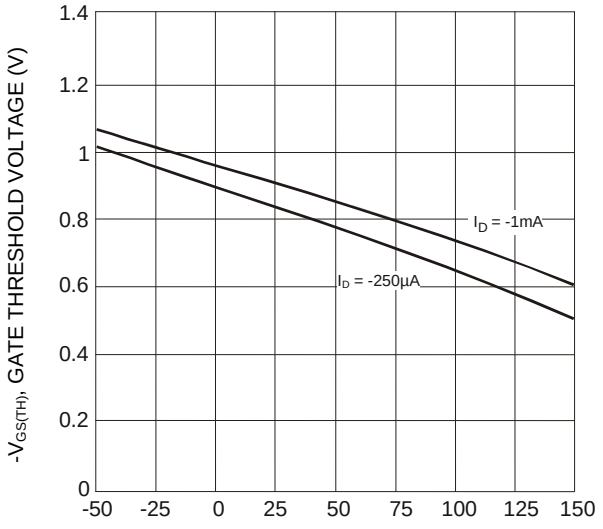


Fig. 7 Gate Threshold Variation vs. Junction Temperature

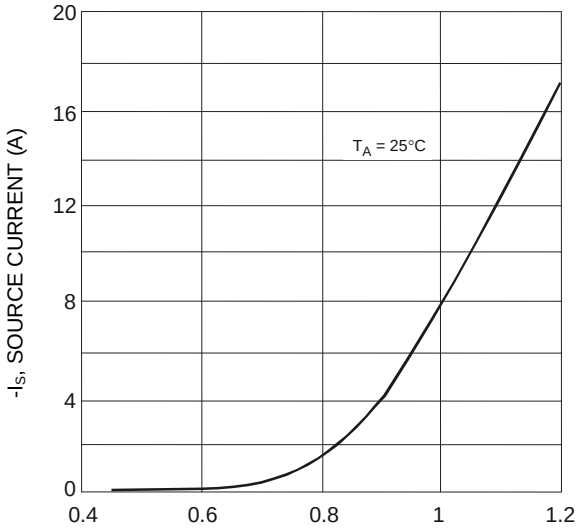


Fig. 8 Diode Forward Voltage vs. Current

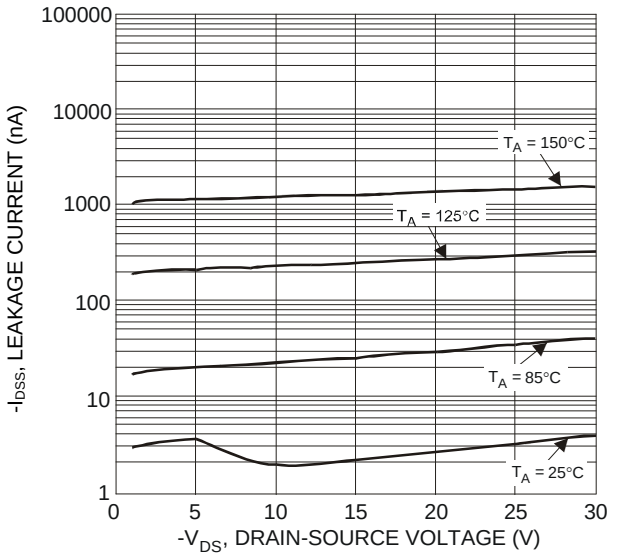


Fig. 9 Typical Drain-Source Leakage Current vs. Voltage

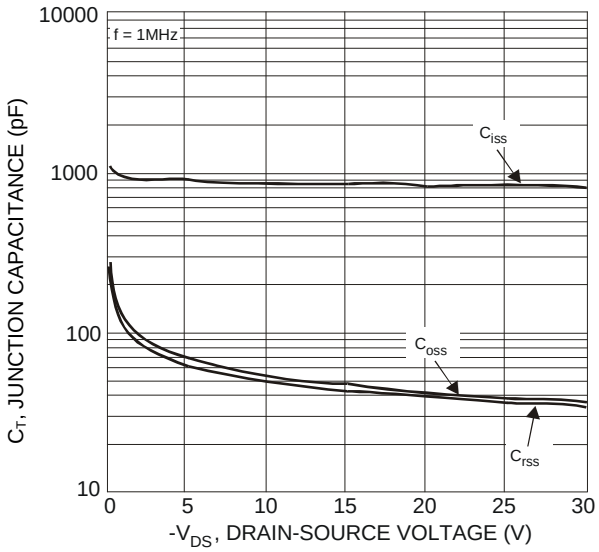


Fig. 10 Typical Junction Capacitance

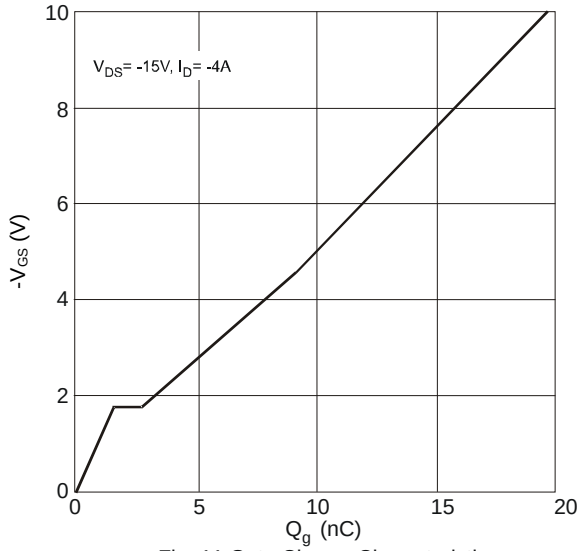


Fig. 11 Gate Charge Characteristics

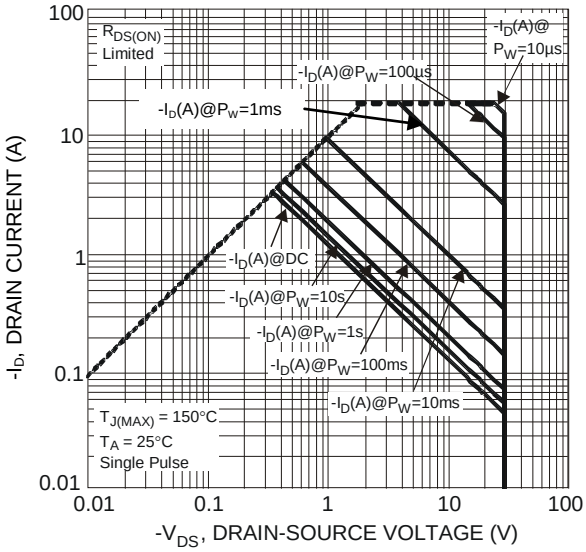


Fig. 12 SOA, Safe Operation Area

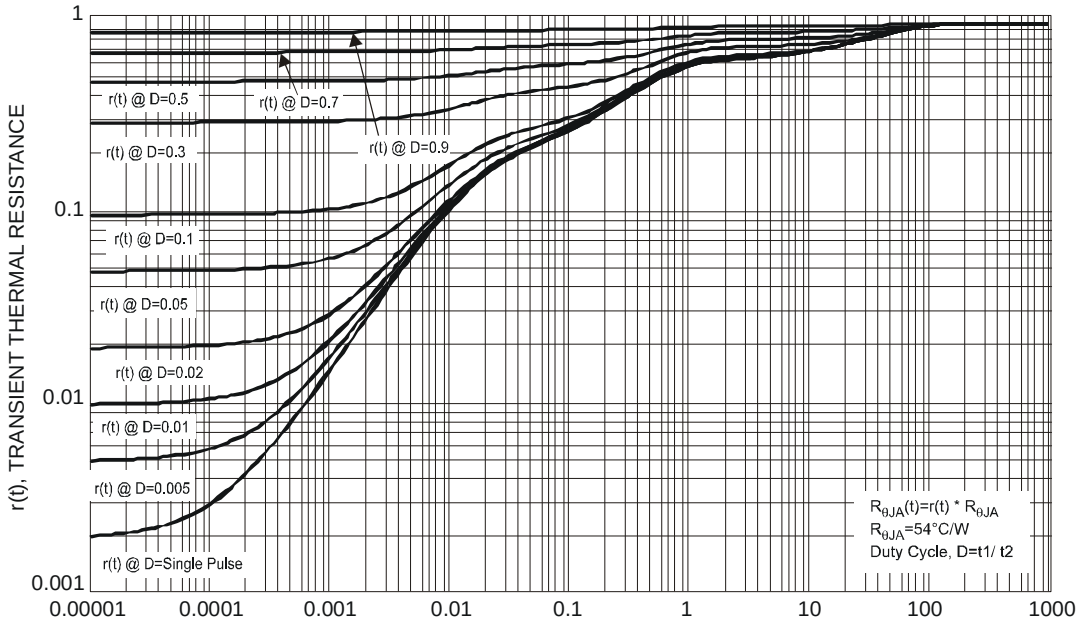
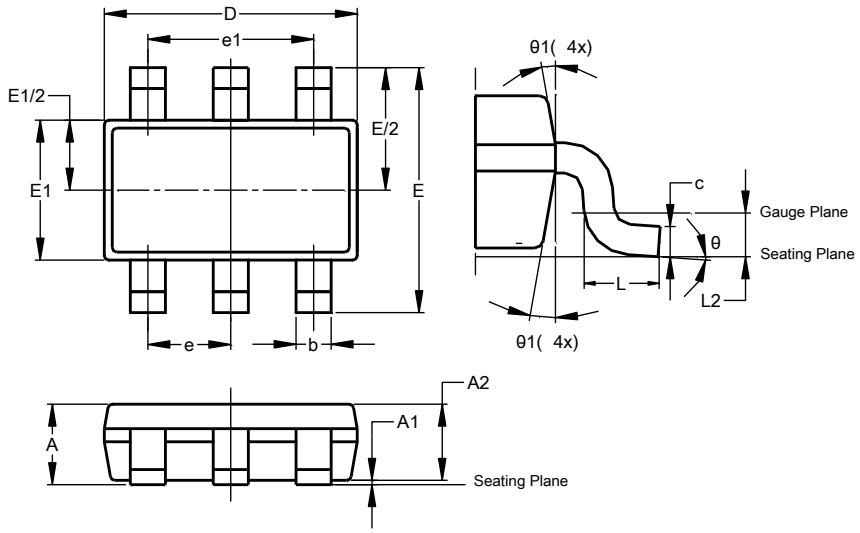


Fig. 13 Transient Thermal Resistance

Package Outline Dimensions

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

TSOT26

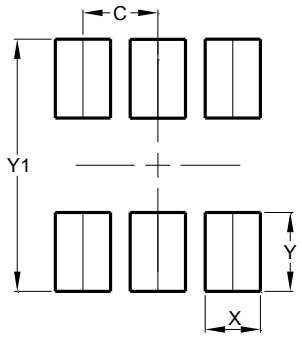


TSOT26			
Dim	**Min**	**Max**	**Typ**
A	–	1.00	–
A1	0.010	0.100	–
A2	0.840	0.900	–
D	2.800	3.000	2.900
E	2.800 BSC		
E1	1.500	1.700	1.600
b	0.300	0.450	–
c	0.120	0.200	–
e	0.950 BSC		
e1	1.900 BSC		
L	0.30	0.50	–
L2	0.250 BSC		
θ	0°	8°	4°
θ1	4°	12°	–
All Dimensions in mm			

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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