



N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(ON)} Max	I _D T _A = +25°C
20V	$24m\Omega$ @ $V_{GS} = 4.5V$	7A
200	28mΩ @ V _{GS} = 2.5V	5A

Features and Benefits

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

Description

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

Applications

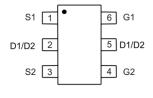
- Backlighting
- DC-DC Converters
- Power Management Functions

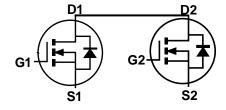
Mechanical Data

- 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 (3)
- Weight: 0.013 grams (Approximate)









TSOT26

Top View

Equivalent Circuit

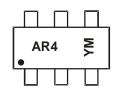
Ordering Information (Note 4)

Part Number	Case	Packaging
DMN2024UVT-7	TSOT26	3000/Tape & Reel
DMN2024UVT-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, refer to http://www.diodes.com/products/packages.html.

Marking Information



 $\begin{array}{l} \text{AR4} = \text{Product Type Marking Code} \\ \text{YM} = \text{Date Code Marking} \\ \text{Y or } \overline{\text{Y}} = \text{Year (ex: F} = 2018) \\ \text{M} = \text{Month (ex: 9} = \text{September)} \end{array}$

Date Code Key

Year	2018		2019	2020		2021	2022		2023	2024		2025
Code	F		G	Н		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	0	N	D



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

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GSS}	±10	V
Continuous Drain Current (Note 6) V _{GS} = 4.5V	I _D	7.0 5.0	А
Maximum Continuous Body Diode Forward Curr	Is	2.3	Α
Pulsed Drain Current (10µs Pulse, Duty Cycle =	I _{DM}	35	А

Thermal Characteristics

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		P_{D}	1.0	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\Theta JA}$	124	°C/W
Total Power Dissipation (Note 6)		P _D	1.6	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{ÐJA}	78	°C/W
Operating and Storage Temperature Range		T _{J,} T _{STG}	-55 to +150	°C

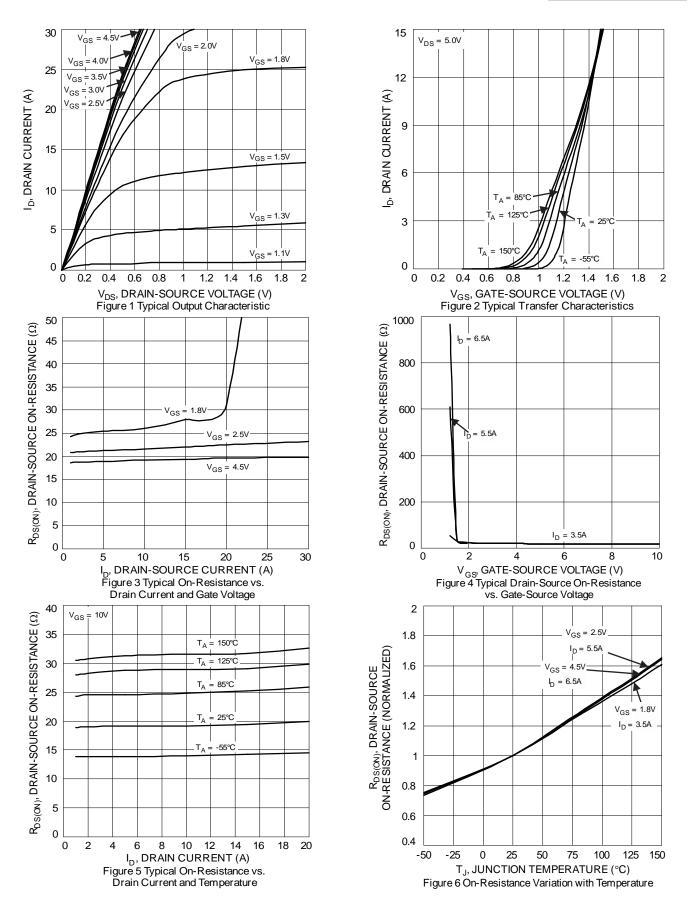
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	20	_	_	V	$V_{GS} = 0V, I_D = 250\mu A$
Zero Gate Voltage Drain Current T _J = +25°C	IDSS	_	_	1.0	μA	$V_{DS} = 20V$, $V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	_	_	±10	μΑ	$V_{GS} = \pm 8V$, $V_{DS} = 0V$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.5	_	0.9	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$
			19	24		$V_{GS} = 4.5V, I_D = 6.5A$
Static Drain-Source On-Resistance	R _{DS(ON)}	_	22	28	mΩ	$V_{GS} = 2.5V, I_D = 5.5A$
			25	34		$V_{GS} = 1.8V, I_D = 3.5A$
Diode Forward Voltage	V _{SD}	_	0.9	1.2	V	$V_{GS} = 0V$, $I_D = 5A$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	_	647	_	pF	
Output Capacitance	Coss	_	78	_	pF	$V_{DS} = 10V, V_{GS} = 0V$ - f = 1.0MHz
Reverse Transfer Capacitance	C _{rss}		38	_	pF	1 – 1.51/11/2
Gate Resistance	R_{g}	_	628	_	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge	Qg	_	7.1	_	nC	
Gate-Source Charge	Q_{gs}	_	0.9	_	nC	$V_{GS} = 4.5V, V_{DS} = 10V, I_D = 6.5A$
Gate-Drain Charge	Q_{gd}	_	0.7	_	nC	
Turn-On Delay Time	t _{D(ON)}	_	98	_	ns	
Turn-On Rise Time	t _R	_	140	_	ns	$V_{DS} = 10V, V_{GS} = 4.5V,$
Turn-Off Delay Time	t _{D(OFF)}	_	1024	_	ns	$R_L = 10\Omega$, $R_G = 6\Omega$, $I_D = 1A$
Turn-Off Fall Time	t _F	_	434	_	ns	
Reverse Recovery Time	t _{RR}		245	_	ns	$I_F = 1.0A$, $di/dt = 100A/\mu s$
Reverse Recovery Charge	Q_{RR}	_	149	_	nC	$I_F = 1.0A$, $di/dt = 100A/\mu s$

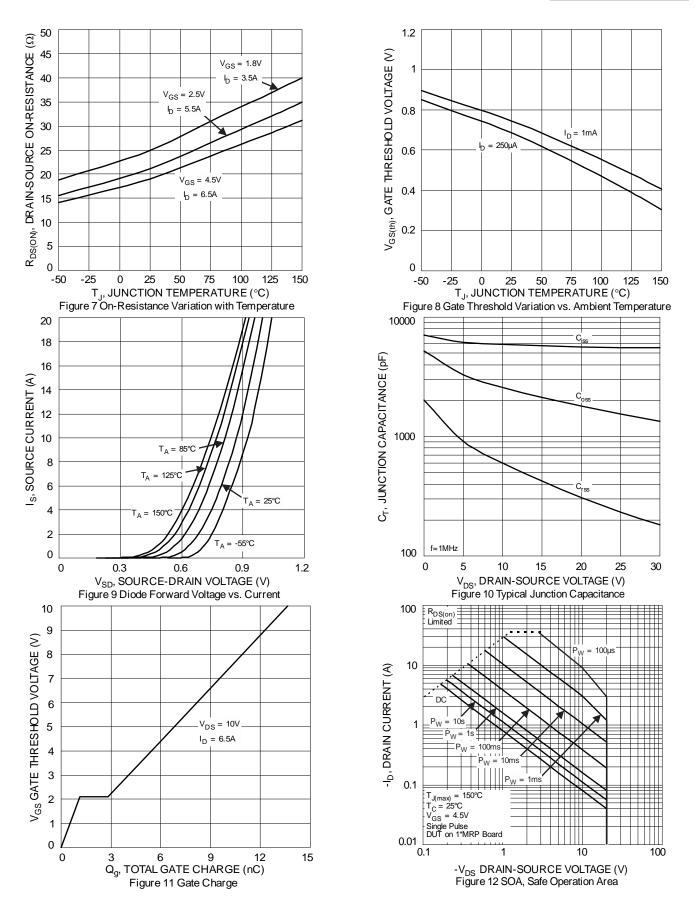
Notes:

- Device mounted on FR-4 PCB, with minimum recommended pad layout.
 Device mounted on 1" x 1" FR-4 PCB with high-coverage 2oz. copper, single sided.
 Short duration pulse test used to minimize self-heating effect.
 Guaranteed by design. Not subject to product testing.











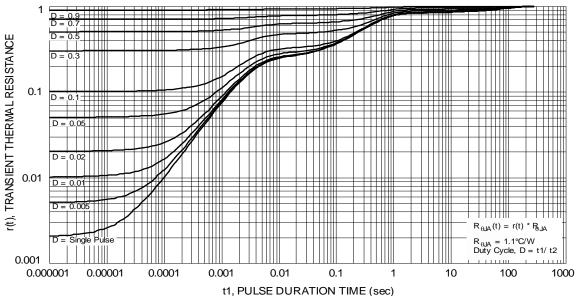


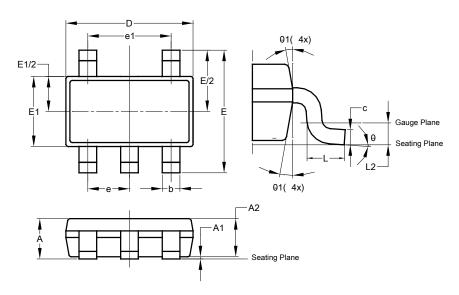
Figure 13 Transient Thermal Resistance



Package Outline Dimensions

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

TSOT25

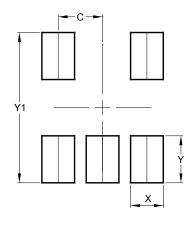


TSOT25							
Dim	Min	Тур					
Α	_	1.00	_				
A1	0.01	0.10	-				
A2	0.84	0.90	-				
b	0.30	0.45	_				
С	0.12	0.20	_				
D	_	_	2.90				
Е	_	_	2.80				
E1	_	_	1.60				
е	0.95 BSC						
e1	1.90 BSC						
L	0.30	0.50	1				
L2	0.25 BSC						
θ	0°	8°	4°				
θ1	4°	12°	_				
All [All Dimensions in mm						

Suggested Pad Layout

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

TSOT25



Dimensions	Value (in mm)
С	0.950
Х	0.700
Y	1.000
V1	3 100



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