



30V N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max T _A = +25°C
	270mΩ @ V _{GS} = 4.5V	1.6A
30V	350mΩ @ V _{GS} = 2.5V	1.4A
	3000mΩ @ V _{GS} = 1.5V	0.5A

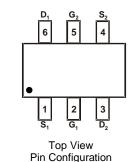
Description and Applications

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.

Battery Management System

TSOT26

Electric Vehicle

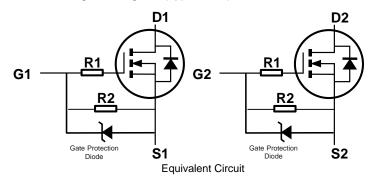


Features and Benefits

- Low Input Capacitance
- Low On-Resistance
- · Fast Switching Speed
- ESD Protected Gate
- 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: See Diagram
- Terminals: Finish—Tin Finish Annealed over Copper Leadframe.
 Solderable per MIL-STD-202, Method 208 (§3)
- Weight: 0.013 grams (Approximate)



Ordering Information (Note 4)

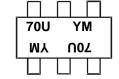
Top View

Part Number	Case	Packaging
DMN3270UVT-7	TSOT26	3000/Tape & Reel
DMN3270UVT-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, see http://www.diodes.com/products/packages.html.

Marking Information



70U = Product Type Marking Code YM = Date Code Marking Y = Year (ex: D = 2016) M = Month (ex: 9 = September)

Date Code Key

Year	2016	20	017	2018	2	2019	2020		2021	2022		2023
Code	D		E	F		G	Н			7		K
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 (@ $T_A = +25^{\circ}C$, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V _{GSS}	+5, -0.5	V
Continuous Drain Current (Note 6) $V_{GS} = 10V$ Steady $T_A = +25^{\circ}C$ State $T_A = +70^{\circ}C$		ΙD	1.6 1.3	А
Maximum Continuous Body Diode Forward Curre	ent (Note 6)	Is	1.1	Α
Pulsed Drain Current (10µs Pulse, Duty Cycle =	1%)	I _{DM}	7	Α

Thermal Characteristics ($@T_A = +25^{\circ}C$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Total Power Dissipation (Note 5)		P_{D}	0.76	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{OJA}	165	°C/W
Total Power Dissipation (Note 6)		P _D	1.08	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{OJA}	118	°C/W
Operating and Storage Temperature Range		$T_{J_i}T_{STG}$	-55 to +150	°C

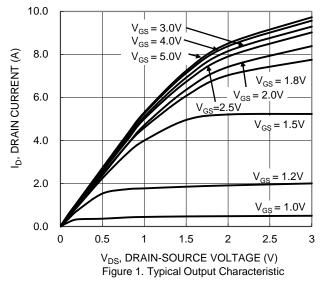
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition		
OFF CHARACTERISTICS (Note 7)								
Drain-Source Breakdown Voltage	BV_{DSS}	30		_	V	$V_{GS} = 0V$, $I_D = 1mA$		
Zero Gate Voltage Drain Current (T _J = +25°C)	IDSS	_	_	1	μΑ	$V_{DS} = 30V$, $V_{GS} = 0V$		
Gate-Source Leakage	I _{GSS}	_	_	30	μΑ	$V_{GS} = 4.5V, V_{DS} = 0V$		
ON CHARACTERISTICS (Note 7)								
Gate Threshold Voltage	V _{GS(TH)}	0.35	0.6	0.9	V	$V_{DS} = V_{GS}$, $I_D = 40\mu A$		
			114	270		$V_{GS} = 4.5V, I_D = 0.65A$		
Static Drain-Source On-Resistance	R _{DS(ON)}	_	156	350	mΩ	$V_{GS} = 2.5V, I_D = 0.65A$		
			185	3000		$V_{GS} = 1.5V, I_D = 0.2A$		
Diode Forward Voltage	V_{SD}	-	0.6	1.0	V	$V_{GS} = 0V, I_{S} = 1.0A$		
Gate Resistance (R1)	Rg	1	3.1	4	kΩ	$f = 1MHz$, $V_{GS} = 0V$, $V_{DS} = 0V$		
Gate-source Resistance (R2)	Rgs	200	338	400	kΩ	-		
DYNAMIC CHARACTERISTICS (Note 8)								
Input Capacitance	C _{iss}	_	161	—	pF	1, 4514.14 014		
Output Capacitance	Coss	_	26	_	pF	V _{DS} = 15V, V _{GS} = 0V -f = 1.0MHz		
Reverse Transfer Capacitance	C _{rss}	_	7.5	_	pF	1 - 1.01/11/2		
Total Gate Charge (Vgs = 4.5V)	Qg	_	3.07	_	nC			
Total Gate Charge (Vgs = 4V)	Qg	_	2.67	_	nC	\/ 45\/ I- 065A		
Gate-Source Charge	Qgs	_	0.30	_	nC	$V_{DS} = 15V, I_D = 0.65A$		
Gate-Drain Charge	Q_{gd}	_	0.25	_	nC			
Turn-On Delay Time	t _{D(ON)}	_	163	_	ns			
Turn-On Rise Time	t _R	_	205	_	ns	$V_{DS} = 15V, V_{GS} = 0 \text{ to } 4V,$		
Turn-Off Delay Time	t _{D(OFF)}	_	1470	_	ns	I _D = 0.65A		
Turn-Off Fall Time	t _F	_	674	_	ns			
Reverse Recovery Time	t _{RR}	_	371	_	ns	I _F = 1A, di/dt = 100A/μs		
Reverse Recovery Charge	Q _{RR}	_	426	_	nC	I _F = 1A, di/dt = 100A/µs		

Notes:

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





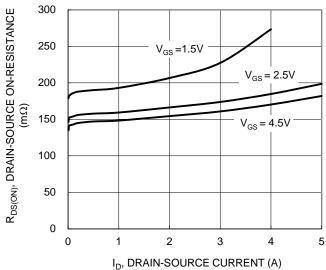


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

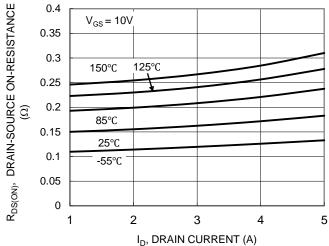


Figure 5. Typical On-Resistance vs. Drain Current and Temperature

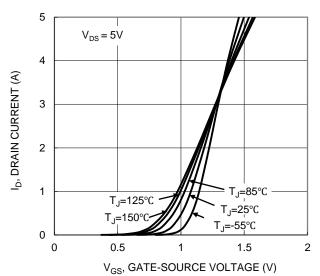


Figure 2. Typical Transfer Characteristic

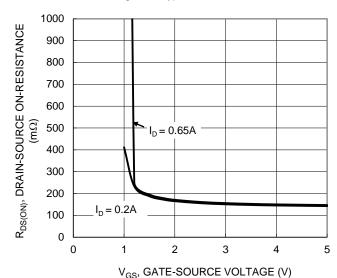
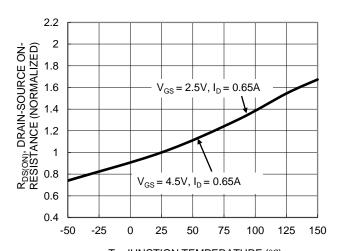


Figure 4. Typical Transfer Characteristic



T_J, JUNCTION TEMPERATURE (°C)
Figure 6. On-Resistance Variation with Temperature



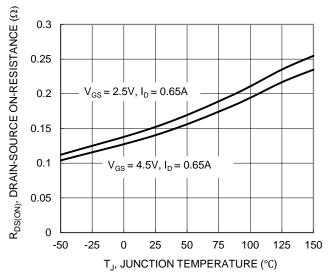
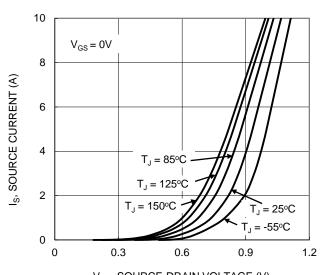
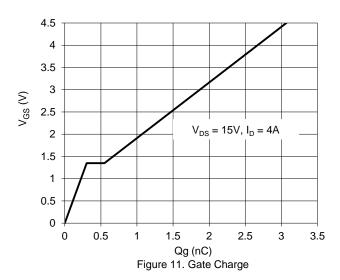


Figure 7. On-Resistance Variation with Temperature



 $\rm V_{SD},$ SOURCE-DRAIN VOLTAGE (V) Figure 9. Diode Forward Voltage vs. Current



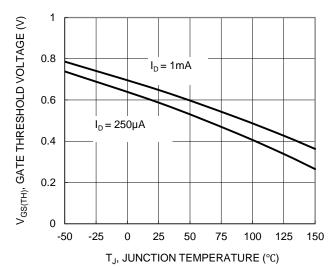
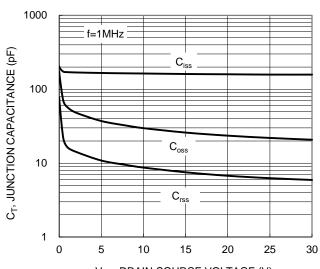
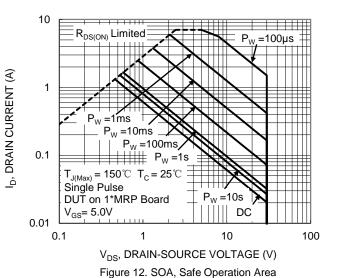


Figure 8. Gate Threshold Variation vs. Junction Temperature



V_{DS}, DRAIN-SOURCE VOLTAGE (V) Figure 10. Typical Junction Capacitance





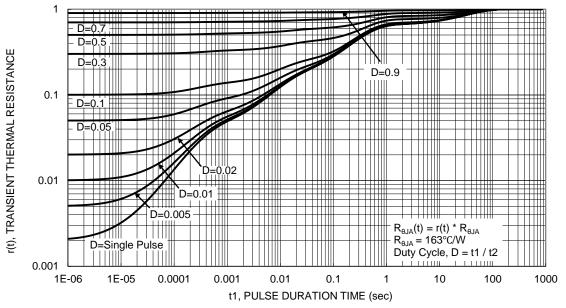
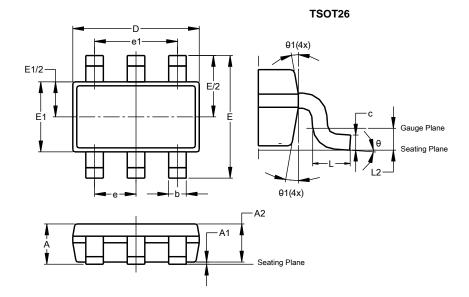


Figure 13. Transient Thermal Resistance



Package Outline Dimensions

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

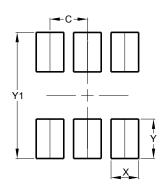


TSOT26							
Dim	Min	Max	Тур				
Α	_	1.00	_				
A1	0.010	0.100	_				
A2	0.840	0.900	_				
D	2.800	3.000	2.900				
Е	2	.800 BS	C				
E1	1.500	1.700	1.600				
b	0.300	0.450					
C	0.120	0.200	_				
e	0.950 BSC						
e1	1	1.900 BSC					
L	0.30 0.50 -		_				
L2	0.250 BSC						
θ	0°	8°	4°				
θ1	4°	_					
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)
С	0.950
Х	0.700
Υ	1.000
Y1	3.199



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Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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