

Features

- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **ESD Protected up to 2KV**
- **"Green" Device (Note 2)**
- Qualified to AEC-Q101 standards for High Reliability

Mechanical Data

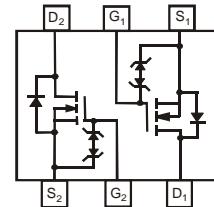
- Case: SOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.015 grams (approximate)



ESD PROTECTED TO 2kV



Top View



Top View
Internal Schematic

Ordering Information (Note 3)

Part Number	Case	Packaging
DMN2004DMK-7	SOT26	3000/Tape & Reel

Notes:

1. No purposefully added lead.
2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
3. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information



NAB = Marking Code
 YM = Date Code Marking
 Y = Year (ex: T = 2006)
 M = Month (ex: 9 = September)

Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	T	U	V	W	X	Y	Z	A	B	C	D	E
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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	± 8	V
Drain Current (Note 4)	Steady State	$T_A = 25^\circ\text{C}$	I_D	540
		$T_A = 85^\circ\text{C}$		390
Pulsed Drain Current (Note 5)		I_{DM}	1.5	A

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

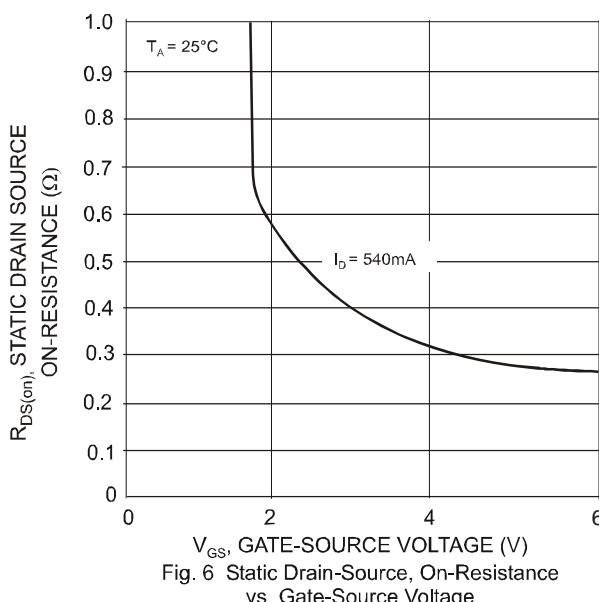
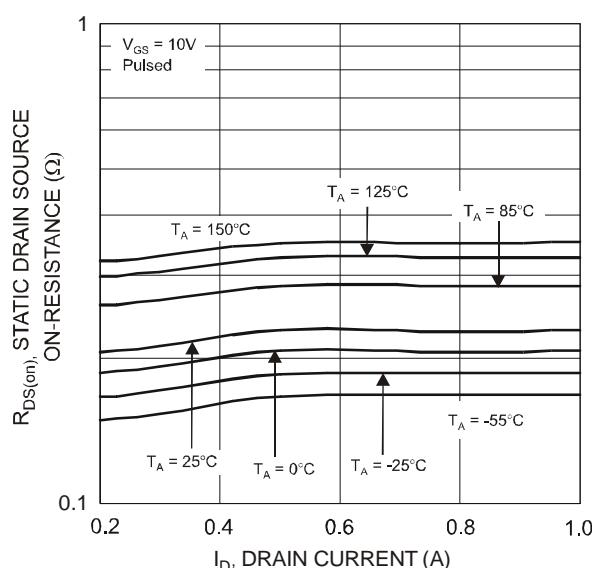
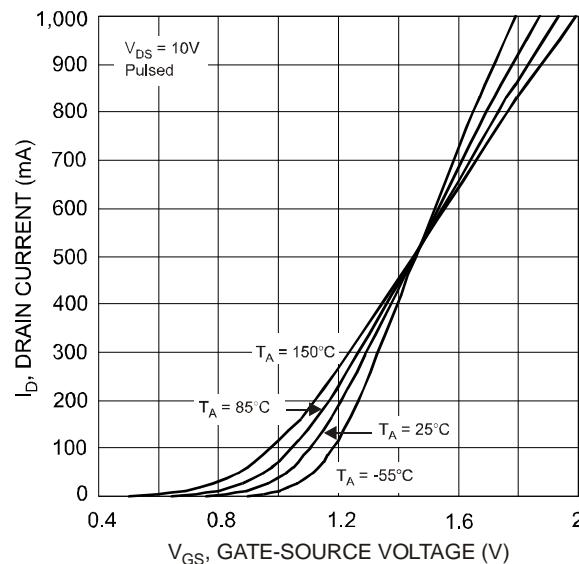
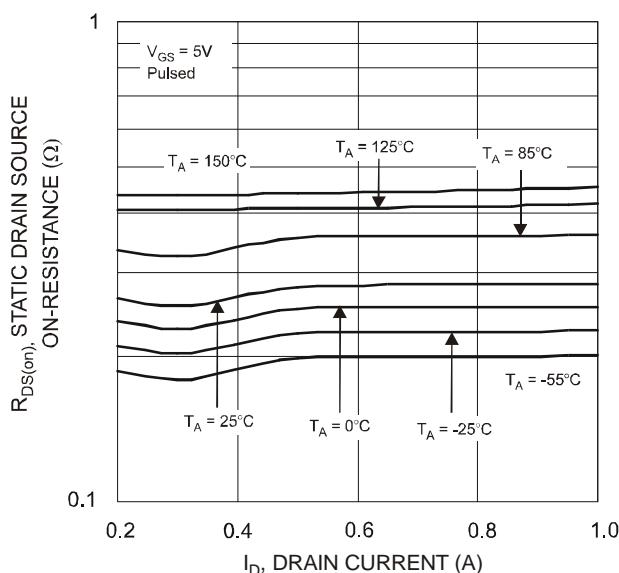
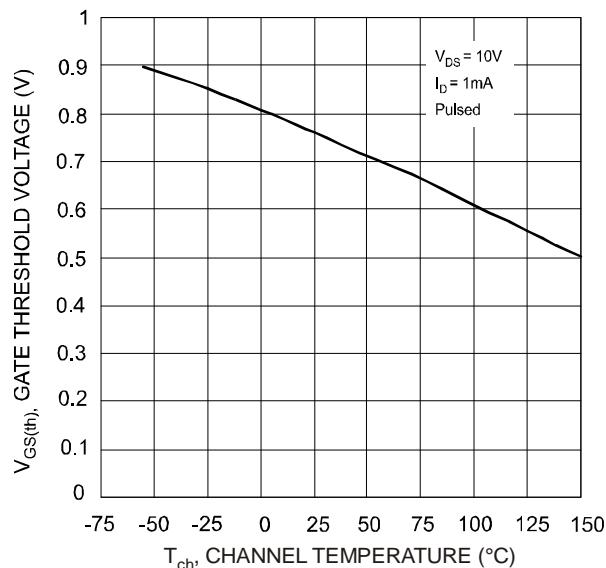
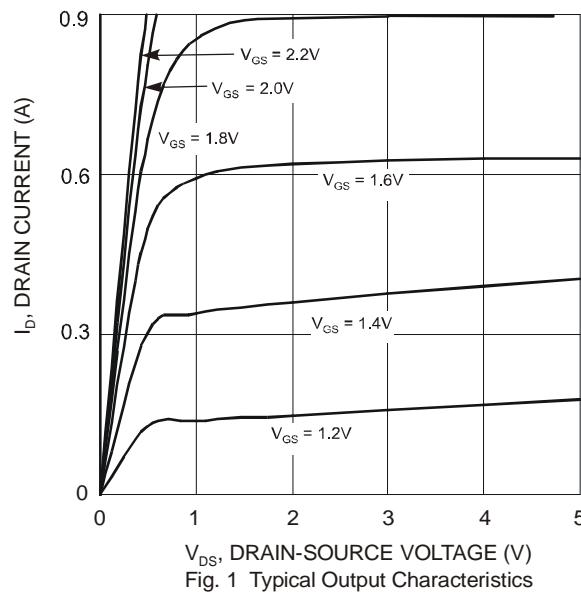
Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 4)	P_D	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	—	—	V	$V_{GS} = 0\text{V}$, $I_D = 10\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 16\text{V}$, $V_{GS} = 0\text{V}$
Gate-Source Leakage	I_{GSS}	—	—	± 1	μA	$V_{GS} = \pm 4.5\text{V}$, $V_{DS} = 0\text{V}$
ON CHARACTERISTICS (Note 6)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	—	1.0	V	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	—	0.4 0.5 0.7	0.55 0.70 0.9	Ω	$V_{GS} = 4.5\text{V}$, $I_D = 540\text{mA}$ $V_{GS} = 2.5\text{V}$, $I_D = 500\text{mA}$ $V_{GS} = 1.8\text{V}$, $I_D = 350\text{mA}$
Forward Transfer Admittance	$ Y_{fs} $	200	—	—	ms	$V_{DS} = 10\text{V}$, $I_D = 0.2\text{A}$
Diode Forward Voltage (Note 6)	V_{SD}	0.5	—	1.4	V	$V_{GS} = 0\text{V}$, $I_S = 115\text{mA}$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	—	150	pF	$V_{DS} = 16\text{V}$, $V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	20	pF	

Notes:

4. Device mounted on FR-4 PCB.
5. Pulse width $\leq 10\mu\text{s}$, Duty Cycle $\leq 1\%$.
6. Short duration pulse test used to minimize self-heating effect.



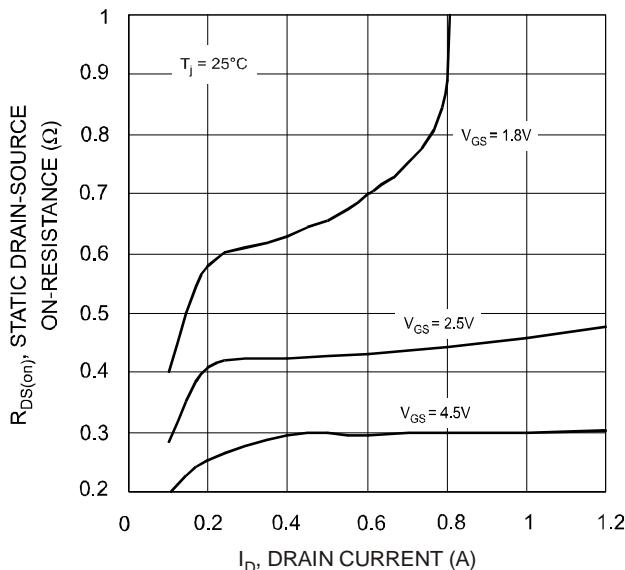


Fig. 7 On-Resistance vs. Drain Current and Gate Voltage

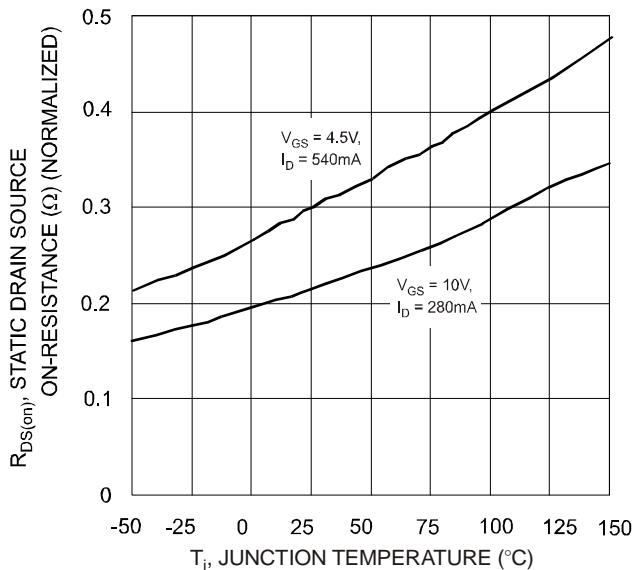


Fig. 8 Static Drain-Source, On-Resistance vs. Temperature

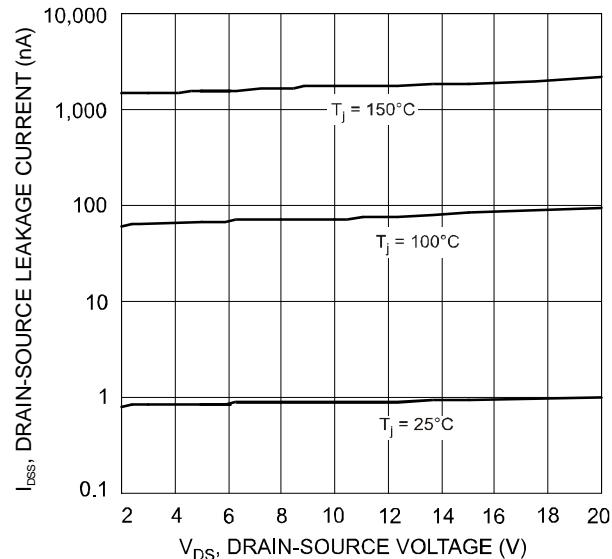


Fig. 9 Drain Source Leakage Current vs. Voltage

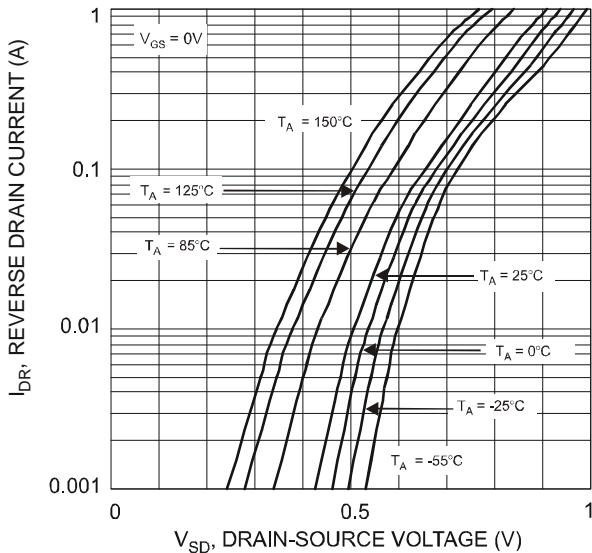


Fig. 10 Reverse Drain Current vs. Source-Drain Voltage

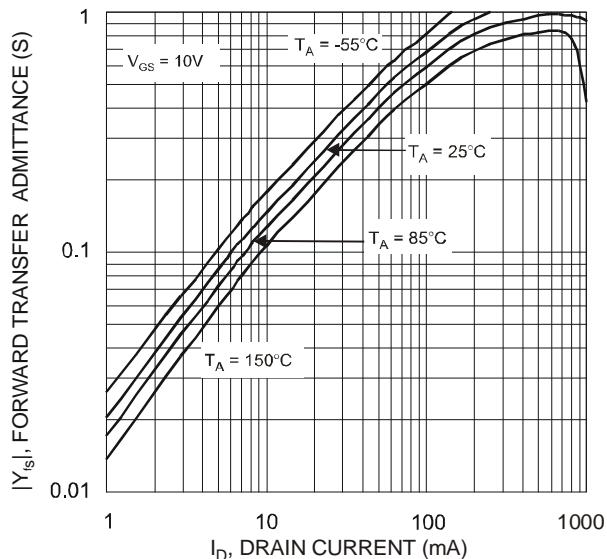


Fig. 11 Forward Transfer Admittance vs. Drain Current

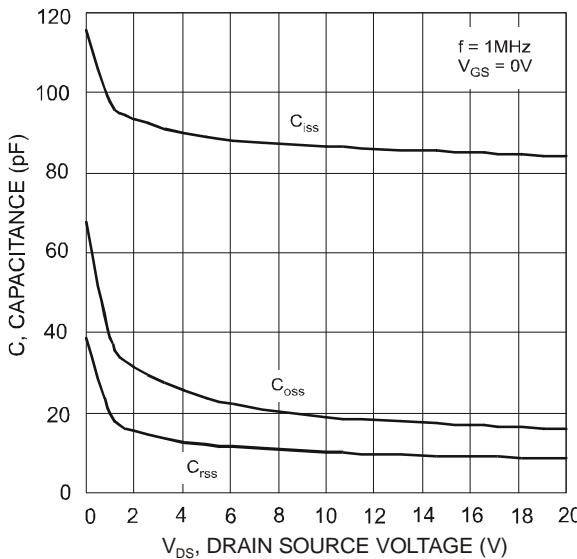
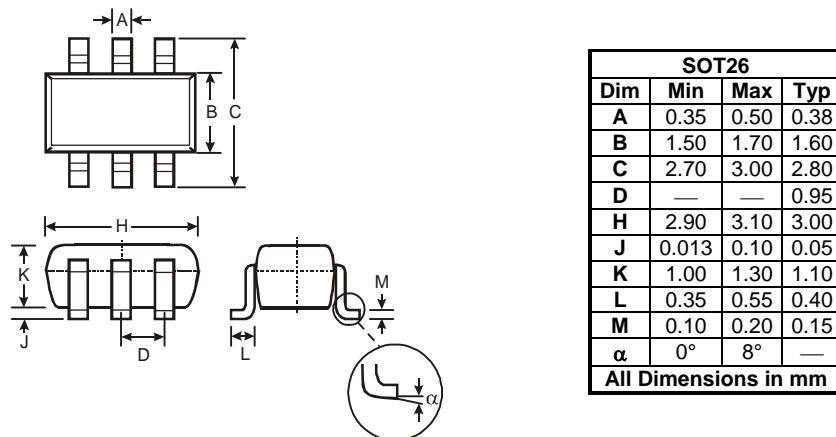
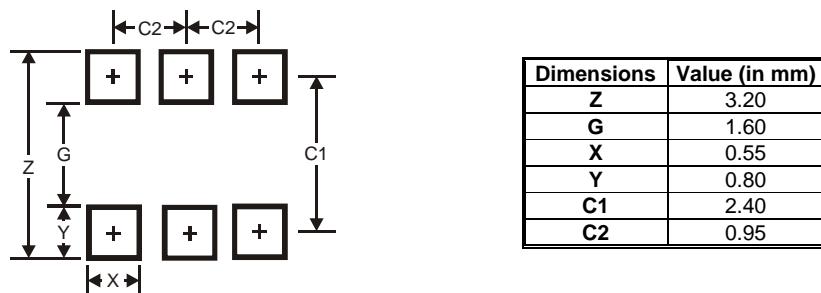


Fig. 12 Capacitance Variation

Package Outline Dimensions



Suggested Pad Layout



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