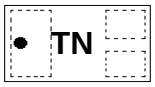
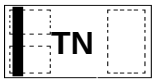
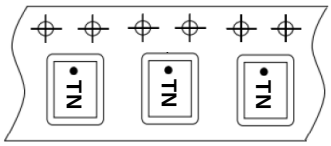
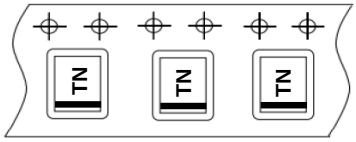
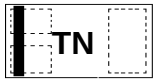
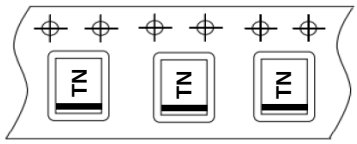
Marking Information

DMN2501UFB4-7	 Top View Dot Denotes Drain Side From date code 1527 (YYWW), this changes to:  Top View Bar Denotes Gate and Source Side  
DMN2501UFB4-7B	 Top View Bar Denotes Gate and Source Side TN = Part Marking Code 

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}	±8	V
Continuous Drain Current (Note 5) V_{GS} = 4.5V	Steady State	T_A = 25°C T_A = 70°C	I_D	1.0 0.8	A
	t<10s	T_A = 25°C T_A = 70°C	I_D	1.2 0.9	A
Continuous Drain Current (Note 6) V_{GS} = 4.5V	Steady State	T_A = 25°C T_A = 70°C	I_D	1.5 1.2	A
	t<10s	T_A = 25°C T_A = 70°C	I_D	1.8 1.4	A
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I_{DM}	6	A
Maximum Body Diode continuous Current			I_S	1	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)	T_A = +25°C	P_D	0.5	W
	T_A = +70°C		0.3	
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	$R_{\theta JA}$	251	°C/W
	t<10s		188	
Total Power Dissipation (Note 6)	T_A = +25°C	P_D	1.2	W
	T_A = +70°C		0.7	
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	$R_{\theta JA}$	110	°C/W
	t<10s		82	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Notes: 5. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.

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}	20	-	-	V	V_{GS} = 0V, I_D = 250µA
Zero Gate Voltage Drain Current T_J = +25°C	I_{DSS}	-	-	100	nA	V_{DS} = 20V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	-	-	±1	µA	V_{GS} = ±6V, V_{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	0.76	1.0	V	V_{DS} = V_{GS}, I_D = 250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	-	170	400	mΩ	V_{GS} = 4.5V, I_D = 600mA
			200	500		V_{GS} = 2.5V, I_D = 500mA
			260	700		V_{GS} = 1.8V, I_D = 350mA
Forward Transfer Admittance	$\|Y_{fs}\|$	-	1.4	-	S	V_{DS} = 10V, I_D = 400mA
Diode Forward Voltage	V_{SD}		0.7	1.2	V	V_{GS} = 0V, I_S = 150mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	-	82	-	pF	V_{DS} =16V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	-	12	-	pF	
Reverse Transfer Capacitance	C_{rss}	-	10	-	pF	
Gate resistance	R_g	-	83	-	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz
Total Gate Charge (V_{GS} = 4.5V)	Q_g	-	1.1	-	nC	V_{DS} = 10V, I_D = 250mA
Total Gate Charge (V_{GS} = 10V)	Q_g	-	2.0	-	nC	
Gate-Source Charge	Q_{gs}	-	0.14	-	nC	
Gate-Drain Charge	Q_{gd}	-	0.19	-	nC	
Turn-On Delay Time	$t_{D(on)}$	-	6.6	-	ns	V_{DD} = 10V, V_{GS} = 4.5V, R_L = 47Ω, R_G = 10Ω, I_D = 200mA
Turn-On Rise Time	t_r	-	6.4	-	ns	
Turn-Off Delay Time	$t_{D(off)}$	-	40.4	-	ns	
Turn-Off Fall Time	t_f	-	17.3	-	ns	

Notes: 7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to product testing.

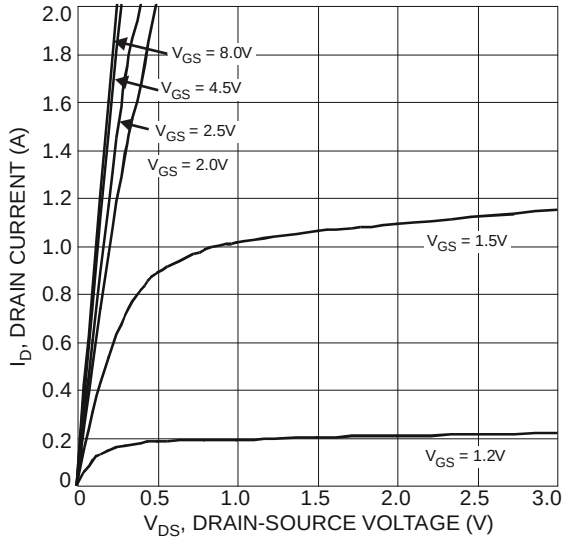


Fig. 1 Typical Output Characteristic

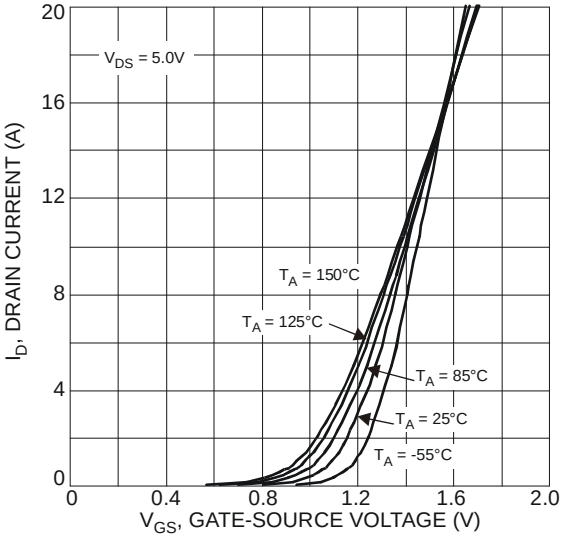


Fig. 2 Typical Transfer Characteristics

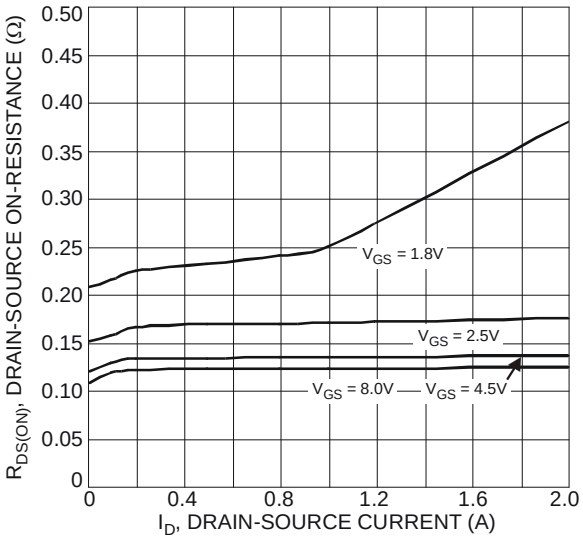


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

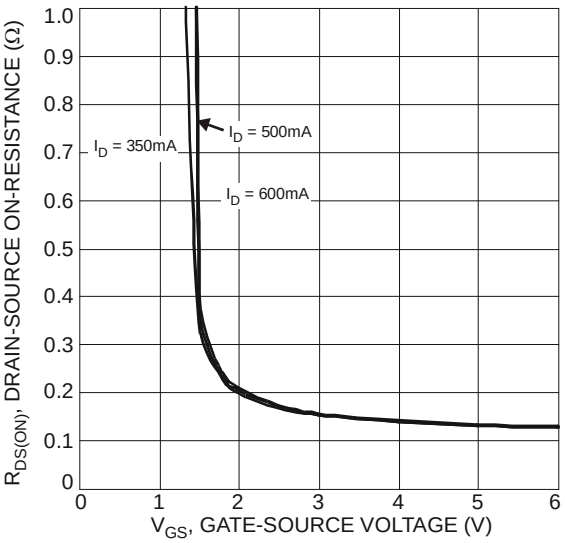


Fig. 4 Typical Drain-Source On-Resistance vs. Gate-Source Voltage

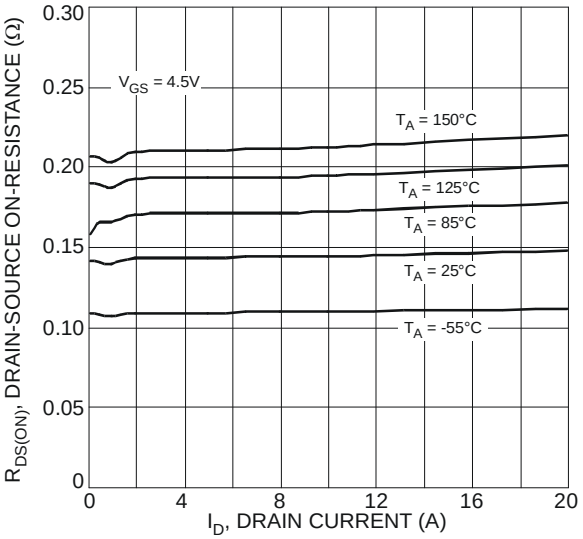


Fig. 5 Typical On-Resistance vs. Drain Current and Temperature

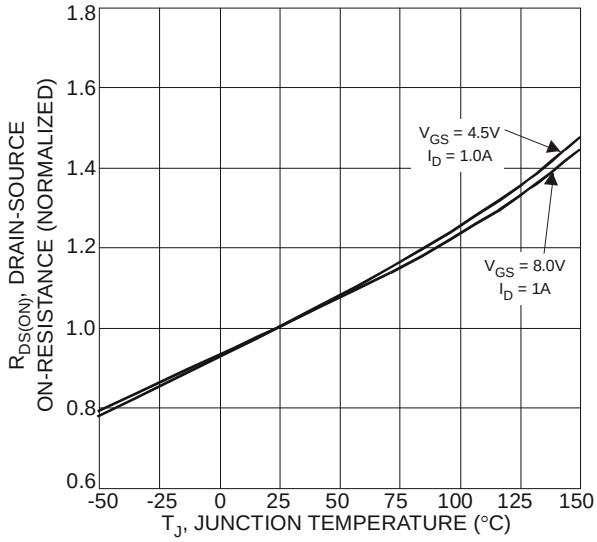


Fig. 6 On-Resistance Variation with Temperature

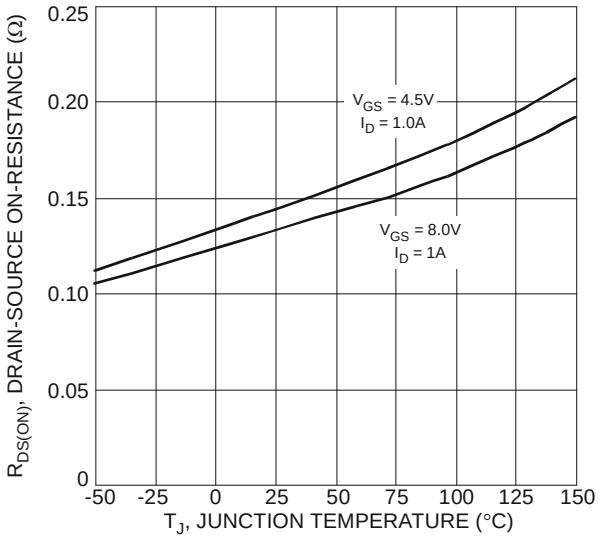


Fig. 7 On-Resistance Variation with Temperature

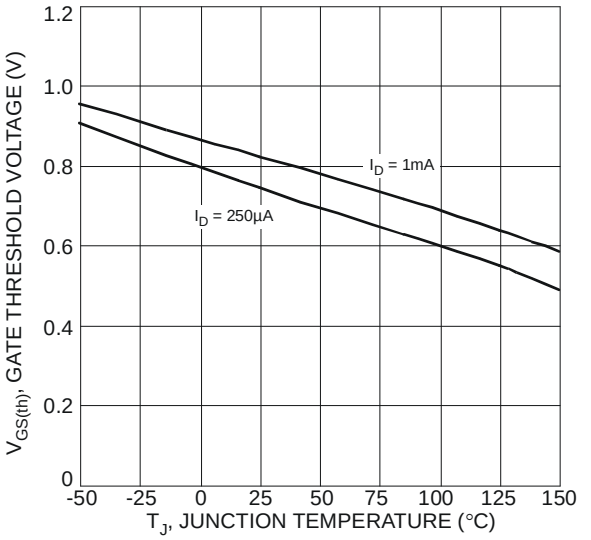


Fig. 8 Gate Threshold Variation vs. Ambient Temperature

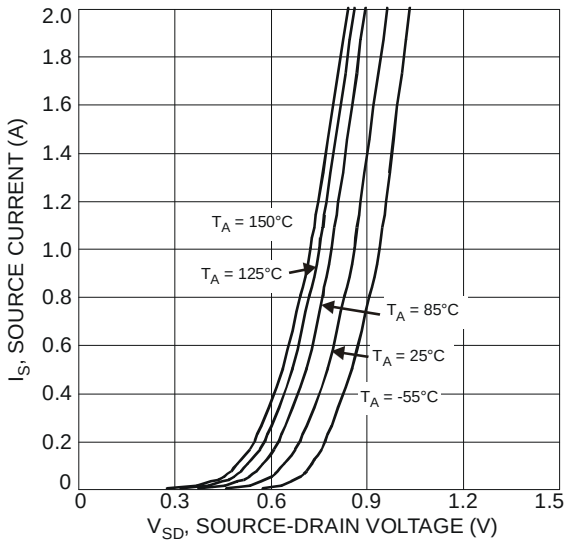


Fig. 9 Diode Forward Voltage vs. Current

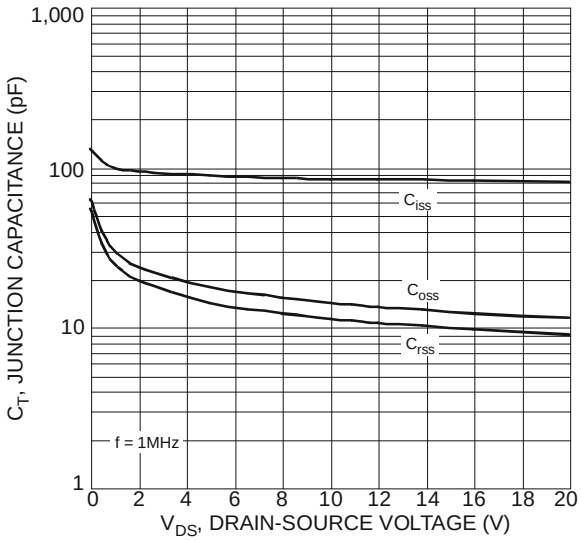


Fig. 10 Typical Junction Capacitance

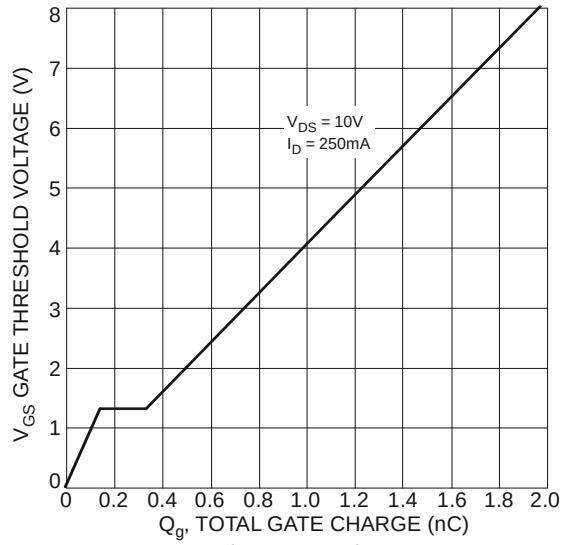


Fig. 11 Gate Charge

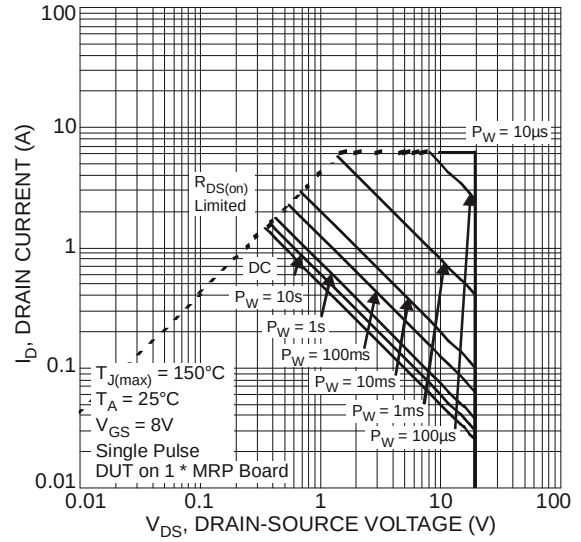


Fig. 12 SOA, Safe Operation Area

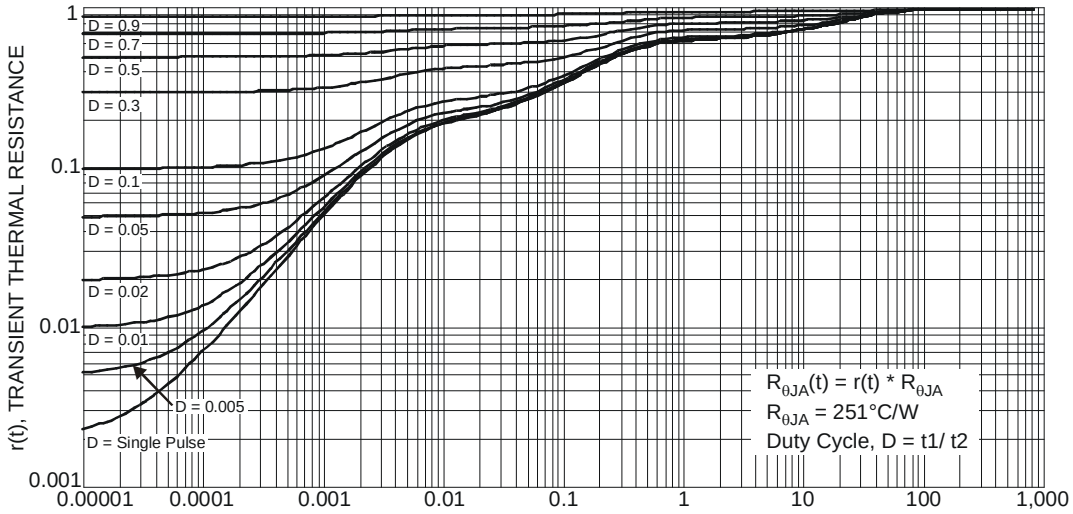
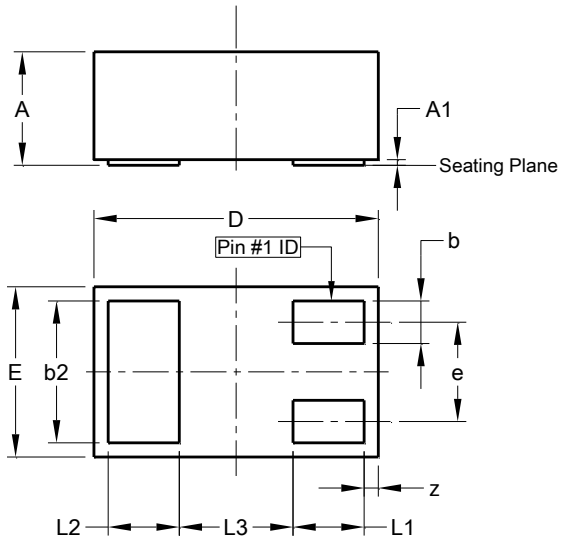


Fig. 13 Transient Thermal Resistance

Package Outline Dimensions

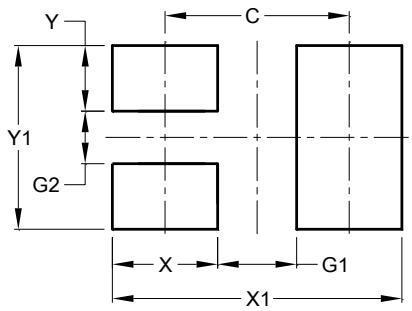
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



X2-DFN1006-3			
Dim	**Min**	**Max**	**Typ**
A	—	0.40	—
A1	0.00	0.05	0.03
b	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.05	1.00
E	0.55	0.65	0.60
e	-	-	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	-	-	0.40
z	0.02	0.08	0.05
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
C	0.70
G1	0.30
G2	0.20
X	0.40
X1	1.10
Y	0.25
Y1	0.70

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