

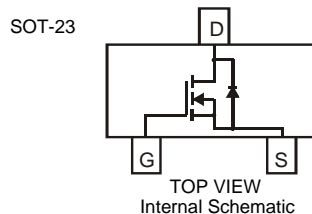
N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

- Low On-Resistance
 - 150 m Ω @ $V_{GS} = 4.5V$
 - 200 m Ω @ $V_{GS} = 2.5V$
 - 240 m Ω @ $V_{GS} = 1.8V$
 - 300 m Ω @ $V_{GS} = 1.5V$
- Ultra Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2, 3 and 5)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)



TOP VIEW

TOP VIEW
Internal SchematicMaximum Ratings @ $T_A = 25^\circ C$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 12	V
Drain Current (Note 1)	I_D	2.0	A
Pulsed Drain Current (Note 1)	I_{DM}	8	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P_D	600	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	208	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	37	—	V	$V_{GS} = 0V, I_D = 100\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	1	μA	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 12V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	—	1	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	100	150	m Ω	$V_{GS} = 4.5V, I_D = 4.5A$
			140	200		$V_{GS} = 2.5V, I_D = 3.5A$
			185	250		$V_{GS} = 1.8V, I_D = 1.5A$
			240	300		$V_{GS} = 1.5V, I_D = 0.5A$
			—	—		—
Forward Transfer Admittance	$ Y_{fs} $	—	5	—	S	$V_{DS} = 5V, I_D = 2.4A$
Diode Forward Voltage (Note 4)	V_{SD}	—	0.8	1.1	V	$V_{GS} = 0V, I = 0.5A$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	193	—	pF	$V_{DS} = 10V, V_{GS} = 0V$ $f = 1.0MHz$
Output Capacitance	C_{oss}	—	35	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	23	—	pF	
Turn-On Delay Time	$t_{d(on)}$	—	7	—	ns	$V_{DD} = 10V, R_L = 10\Omega$ $I_D = 1A, V_{GEN} = 4.5V, R_G = 6\Omega$
Rise Time	t_r	—	24	—		
Turn-Off Delay Time	$t_{d(off)}$	—	24	—		
Fall Time	t_f	—	12	—		

- Notes:
- Device mounted on FR-4 PCB.
 - No purposefully added lead. Halogen and Antimony Free.
 - Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 - Short duration pulse test used to minimize self-heating effect.
 - Product manufactured with Green Molding Compound and does not contain Halogens or Sb_2O_3 Fire Retardants.

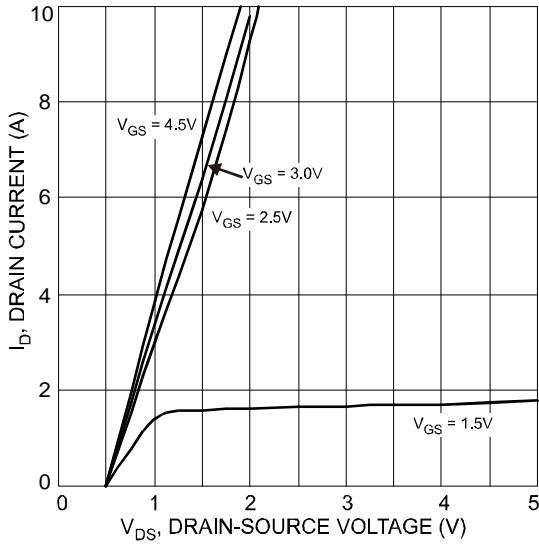


Fig. 1 Typical Output Characteristic

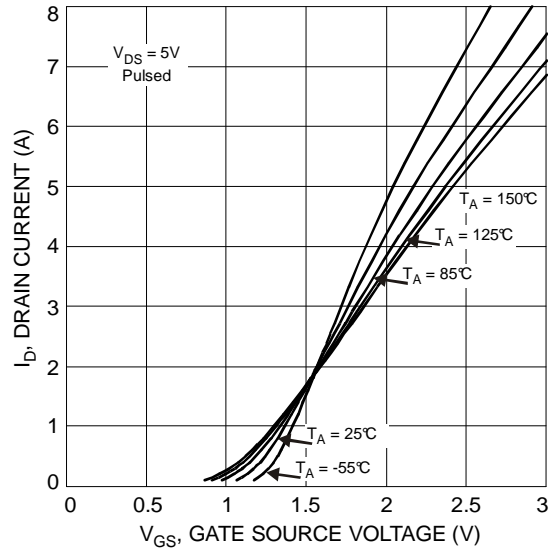


Fig. 2 Typical Transfer Characteristics

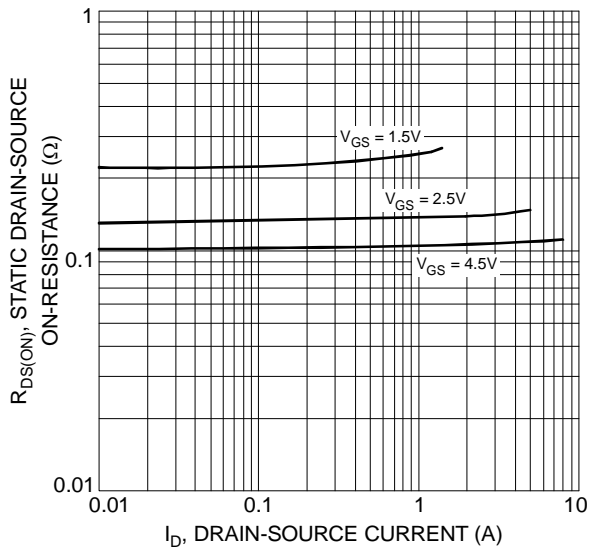


Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

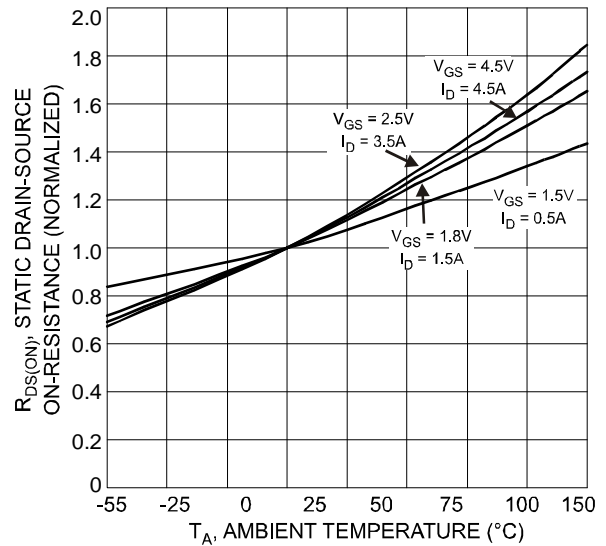


Fig. 4 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

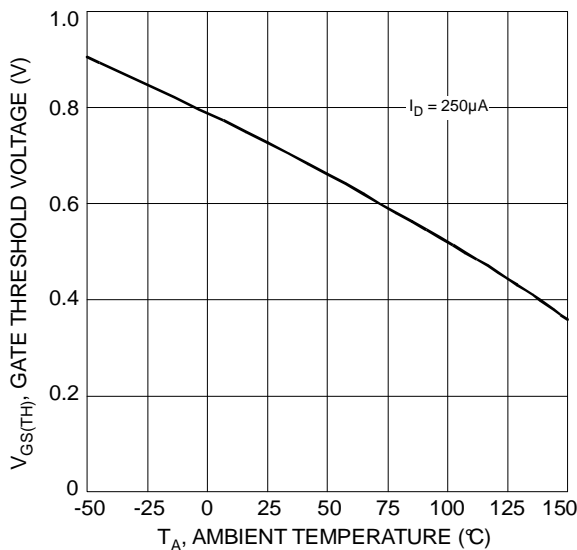


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

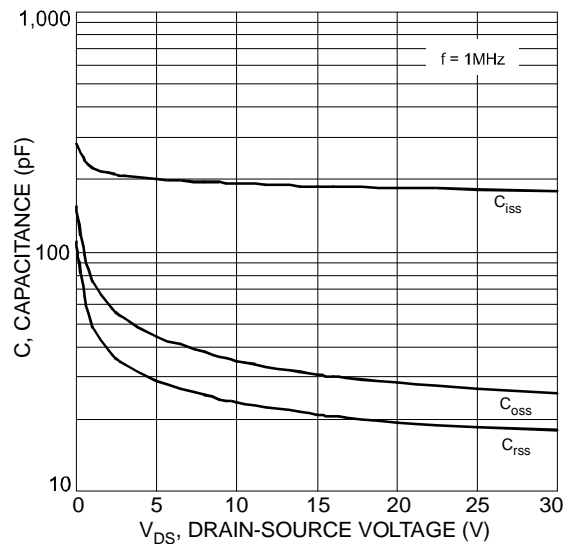


Fig. 6 Typical Total Capacitance

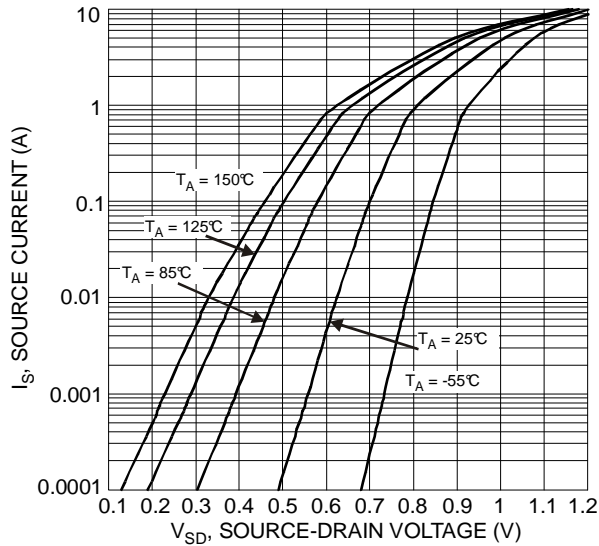


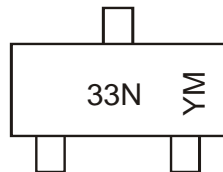
Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

Ordering Information (Note 6)

Part Number	Case	Packaging
DMN3300U-7	SOT-23	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



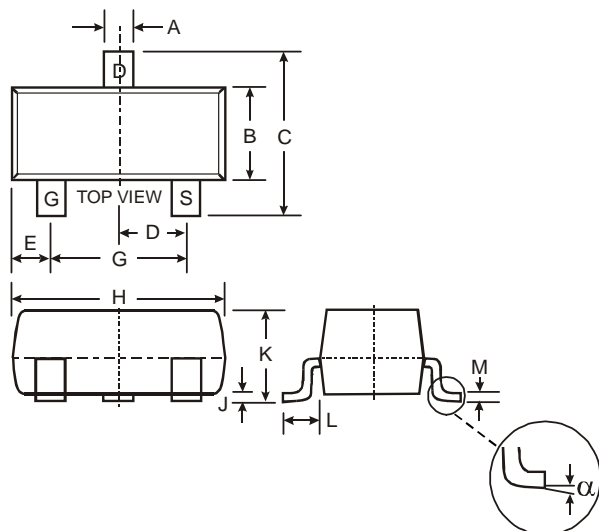
33N = Marking Code
 YM = Date Code Marking
 Y = Year ex: U = 2007
 M = Month ex: 9 = September

Date Code Key (If Applicable)

Year	2007	2008	2009	2010	2011	2012
Code	U	V	W	X	Y	Z

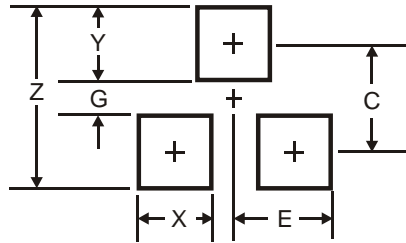
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.4
G	0.7
X	0.9
Y	1.4
C	2.0
E	0.9

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