



DMG2301U

P-CHANNEL ENHANCEMENT MODE MOSFET

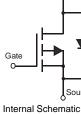
Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

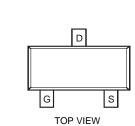
- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminals Connections: See Diagram Below
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.008 grams (approximate)





Drain

TOP VIEW



Maximum Ratings @T_A = 25°C unless otherwise specified

Charact	eristic		Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	-20	V
Gate-Source Voltage		V _{GSS}	±8	V	
Continuous Drain Current (Note 3)	Steady State	T _A = 25°C T _A = 70°C	۱ _D	-2.5 -2.0	A
Pulsed Drain Current (Note 4)			I _{DM}	-27	A

Thermal Characteristics

Notes:

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	PD	0.8	W
Thermal Resistance, Junction to Ambient @T _A = 25°C	R _{0JA}	157	°C/W
Operating and Storage Temperature Range	TJ, TSTG	-55 to +150	°C

1. No purposefully added lead.

2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

3. Device mounted on FR-4 PCB with minimum recommended pad layout.

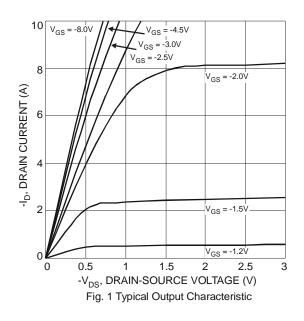
4. Repetitive rating, pulse width limited by junction temperature.

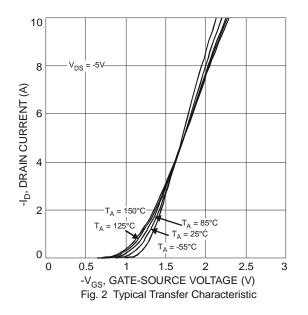


Electrical Characteristics @T_A = 25°C unless otherwise specified

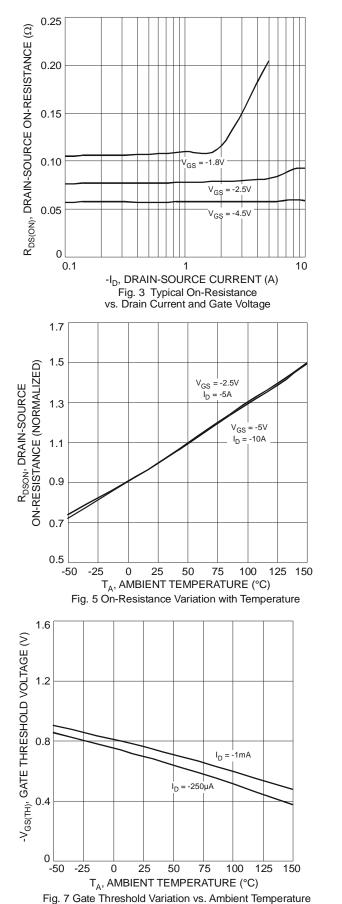
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)	• • • • • •					
Drain-Source Breakdown Voltage	BV _{DSS}	-20			V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current $T_J = 25^{\circ}C$	I _{DSS}	_		-1.0	μΑ	$V_{DS} = -16V, V_{GS} = 0V$
Gate-Source Leakage	I _{GSS}	_	_	±100	nA	$V_{GS} = \pm 8V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	-0.45		-1.0	V	$V_{DS} = V_{GS}, I_D = -250 \mu A$
Static Drain-Source On-Resistance	D		_	130	mΩ	$V_{GS} = -4.5V, I_D = -2.8A$
Static Drain-Source On-Resistance	R _{DS (ON)}	_		190		$V_{GS} = -2.5V, I_D = -2.0A$
Forward Transfer Admittance	Y _{fs}	_	10	_	S	$V_{DS} = -5V, I_D = -2.8A$
Diode Forward Voltage	V _{SD}	_	-0.75	-1.0	V	$V_{GS} = 0V, I_{S} = -1A$
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	Ciss	_	608		pF	
Output Capacitance		_	82	_	pF	−V _{DS} = -6V, V _{GS} = 0V −f = 1.0MHz
Reverse Transfer Capacitance	Crss	_	72		pF	1 = 1.00012
Gate Resistance	R _G	_	44.9		Ω	$V_{GS} = 0V, V_{DS} = 0V, f = 1.0MHz$
Total Gate Charge	Qg	_	6.5	_	nC	
Gate-Source Charge	Q _{gs}	_	0.9	_	nC	$V_{GS} = -4.5V, V_{DS} = -10V, I_{D} = -3A$
Gate-Drain Charge	Q _{gd}	_	1.5	_	nC	
Turn-On Delay Time	t _{D(on)}	_	12.5		ns	
Turn-On Rise Time	tr	_	10.3		ns	V _{DS} = -10V, V _{GS} = -4.5V,
Turn-Off Delay Time	t _{D(off)}	_	46.5	_	ns	$R_L = 10\Omega, R_G = 1.0\Omega, I_D = -1A$
Turn-Off Fall Time	t _f	_	22.2	—	ns	

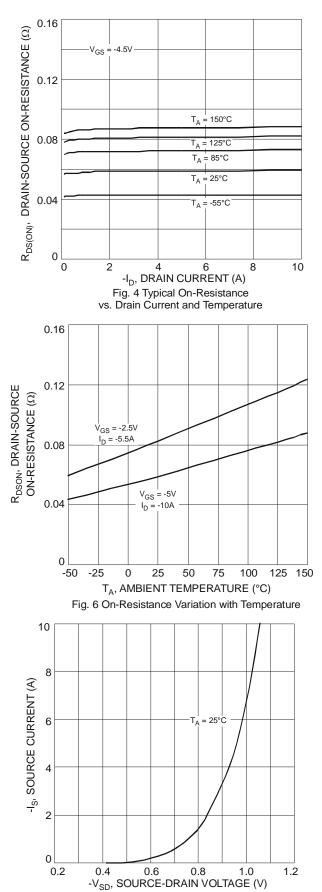
 Short duration pulse test used to minimize self-heating effect.
Guaranteed by design. Not subject to production testing. Notes:







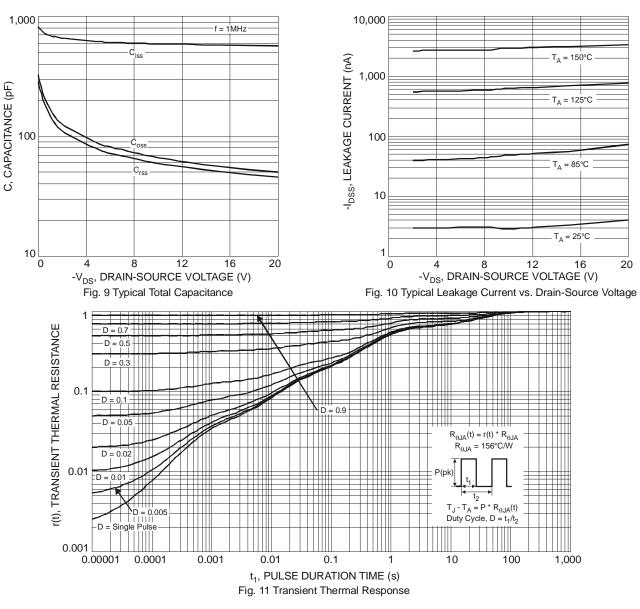




-v_{SD}, SOURCE-DRAIN VOLTAGE (V) Fig. 8 Diode Forward Voltage vs. Current

DMG2301U Document number: DS31848 Rev. 1 - 2



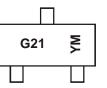


Ordering Information (Note 7)

Part Number	Case	Packaging
DMG2301U-7	SOT-23	3000/Tape & Reel

Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

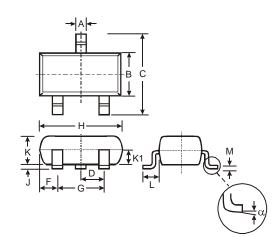


G21 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: W = 2009) M = Month (ex: 9 = September)

Date Code Key												
Year	200	9	2010		2011	20	12	2013		2014	2	2015
Code	W		Х		Y	2	Z	А		В		С
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

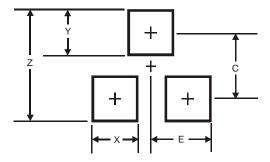


Package Outline Dimensions



SOT-23						
Dim	Min	Max	Тур			
Α	0.37	0.51	0.40			
В	1.20	1.40	1.30			
С	2.30	2.50	2.40			
D	0.89	1.03	0.915			
F	0.45	0.60	0.535			
G	1.78	2.05	1.83			
н	2.80	3.00	2.90			
J	0.013	0.10	0.05			
Κ	0.903	1.10	1.00			
K1	-	-	0.400			
L	0.45	0.61	0.55			
М	0.085	0.18	0.11			
α	0°	8°	-			
All Dimensions in mm						

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
Х	0.8
Y	0.9
С	2.0
E	1.35



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