



Description

The DMG301NU uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = 30V$ $I_D = 0.1A$

$R_{DS(ON)} < 2.2\Omega @ V_{GS}=10V$

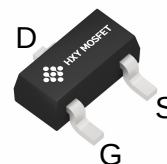
ESD Rating: HBM $\geq 2000V$

Application

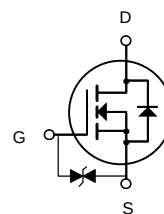
Battery protection

Load switch

Uninterruptible power supply



SOT-23



N-Channel MOSFET

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
DMG301NU	SOT-23	HXY MOSFET	3000

Absolute Maximum Ratings ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter		Limit	Unit
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		± 20	V
I_D	Continuous Drain Current ($T_J = 150^\circ C$)	$T_A = 25^\circ C$	0.1	A
		$T_A = 100^\circ C$	0.07	
I_{DM}	Drain Current-Pulsed (Note 1)		0.65	A
P_D	Maximum Power Dissipation		0.35	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range		-55 To 150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 2)		200	$^\circ C/W$



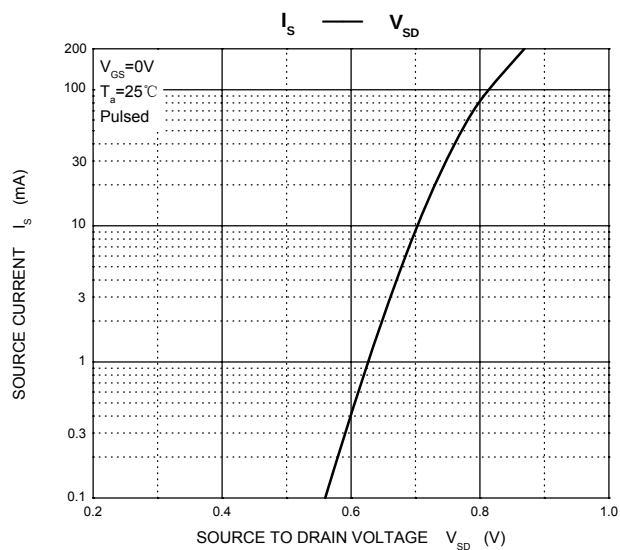
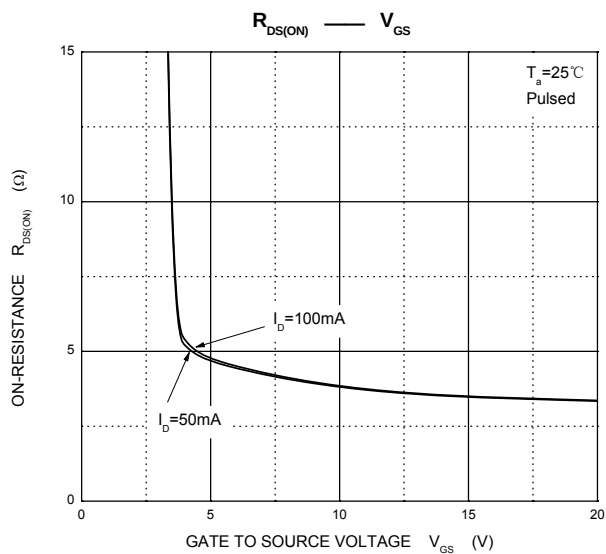
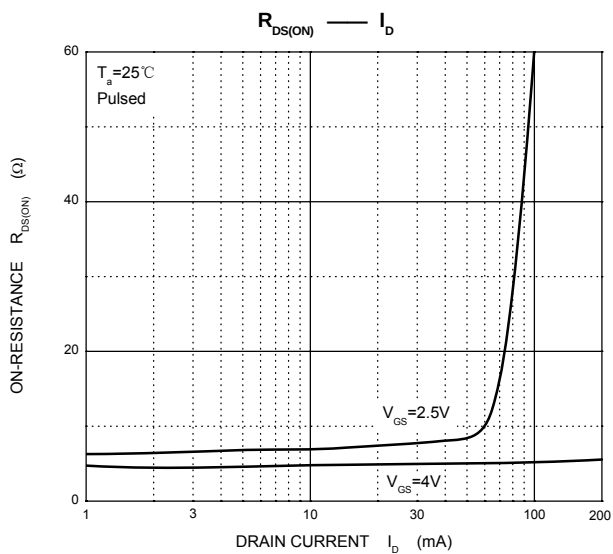
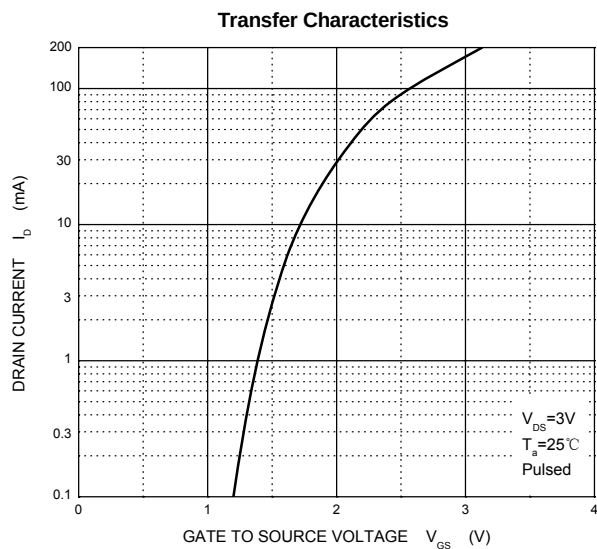
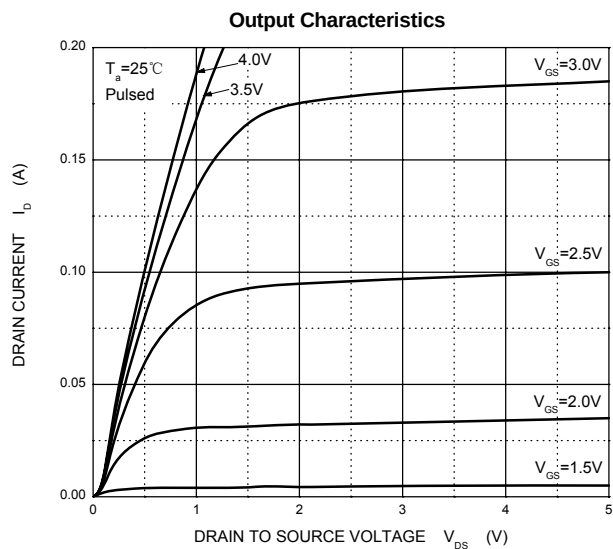
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0V, I _D = 10μA	30			V
Zero Gate Voltage Drain Current	I _{bss}	V _{DS} =30V,V _{GS} = 0V			0.2	μA
Gate –Source leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±2	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = 3V, I _D =100μA	0.8		1.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D =10mA		1.5	2.2	Ω
		V _{GS} =4.5V,I _D =1mA		2	3	Ω
Forward Transconductance	g _{FS}	V _{DS} =3V, I _D = 10mA	20			mS
Dynamic Characteristics*						
Input Capacitance	C _{iss}	V _{DS} =5V,V _{GS} =0V,f =1MHz		13		pF
Output Capacitance	C _{oss}			9		pF
Reverse Transfer Capacitance	C _{rss}			4		pF
Switching Characteristics*						
Turn-On Delay Time	t _{d(on)}	V _{GS} =5V, V _{DD} =5V, I _D =10mA, R _g =10Ω, R _L =500Ω,		15		ns
Rise Time	t _r			35		ns
Turn-Off Delay Time	t _{d(off)}			80		ns
Fall Time	t _f			80		ns

* These parameters have no way to verify.

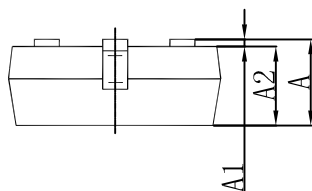
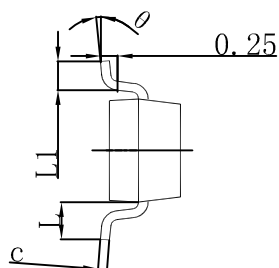
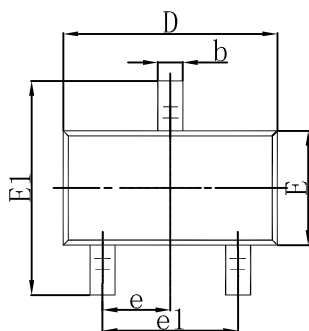


Typical Characteristics



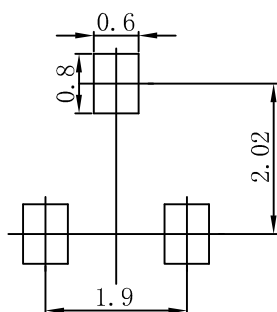


SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



Note:
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.



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