



N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV _{DSS} (@ T _J Max)	R _{DS(ON)} Max	I _D @T _C = +25°C	
650V	3.5Ω @ V _{GS} = 10V	2.8A	

Features and Benefits

- Low On-Resistance
- High BV_{DSS} Rating for Power Application
- Low Input Capacitance
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

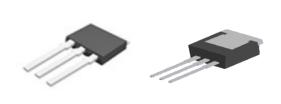
Description and Applications

This new generation MOSFET is designed to minimize the on-state resistance (R_{DS(ON)}), yet maintain superior switching performance, making it ideal for high efficiency power management applications.

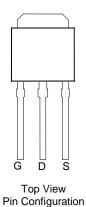
- Motor Control
- Backlighting
- DC-DC Converters
- Power Management Functions

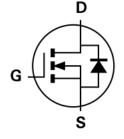
Mechanical Data

- Case: TO251 (Type TH)
- 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 @3
- Weight: 0.33 grams (Approximate)



Top View Bottom View





Internal Schematic

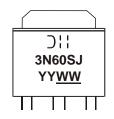
Ordering Information (Note 4)

Part Number	Case	Packaging	
DMG3N60SJ3	TO251 (Type TH)	75 Pieces/Tube	

Notes:

- 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



Olli-Manufacturer's Marking
3N60SJ = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Last Two Digits of Year (ex: 17 = 2017)
WW or WW = Week Code (01 to 53)



Characteristic	Symbol	Value	Unit		
Drain-Source Voltage	V_{DSS}	600	V		
Gate-Source Voltage	V_{GSS}	±30	V		
Continuous Drain Current (Note 5) V _{GS} = 10V	Steady State	$T_{C} = +25^{\circ}C$ $T_{C} = +100^{\circ}C$	ΙD	2.8 1.8	А
Maximum Body Diode Forward Current (Note 5)	Is	2.5	Α		
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)	I _{DM}	4.2	Α		
Avalanche Current, L = 60mH (Note 7)			I _{AS}	1.0	Α
Avalanche Energy, L = 60mH (Note 7)			E _{AS}	33	mJ
Peak Diode Recovery dv/dt			dv/dt	5	V/ns

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

Characteristic		Symbol	Value	Unit	
Total Power Dissipation (Note 5)	$T_C = +25^{\circ}C$	В	41	W	
Total Power Dissipation (Note 5)	$T_C = +100^{\circ}C$	P_{D}	16	VV	
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	49	°C/W		
Thermal Resistance, Junction to Case (Note 5)	R _{0JC}	3.0			
Operating and Storage Temperature Range		T _{J,} T _{STG}	-55 to +150	°C	

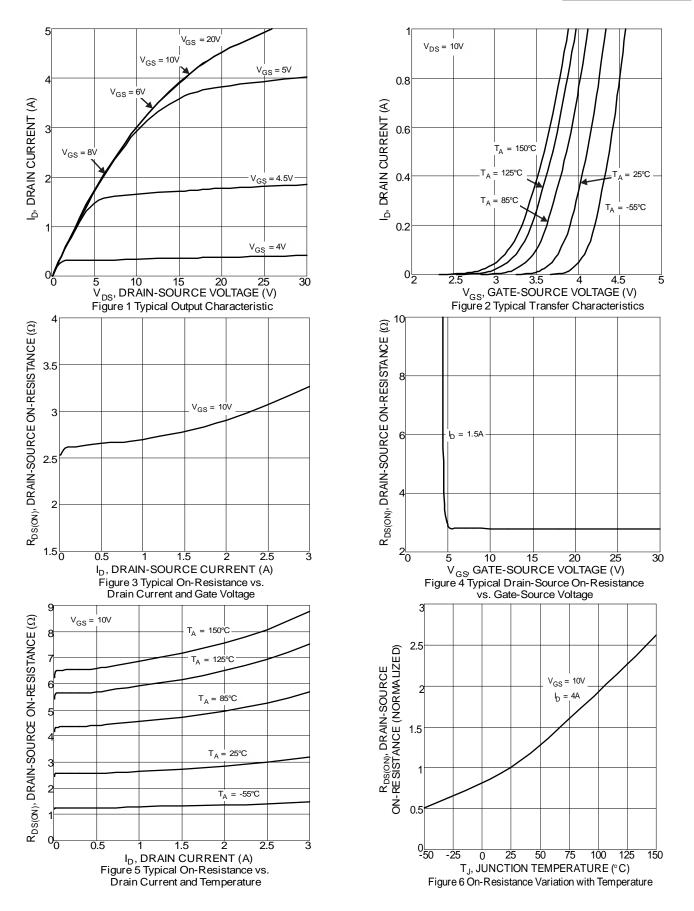
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 8)							
Drain-Source Breakdown Voltage	BV _{DSS}	600		_	V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current	I _{DSS}	_	_	1	μA	$V_{DS} = 600V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	_	_	100	nA	$V_{GS} = \pm 30V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 8)							
Gate Threshold Voltage	$V_{GS(TH)}$	2.0	_	4.0	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	
Static Drain-Source On-Resistance	R _{DS(ON)}	_	1	3.5	Ω	$V_{GS} = 10V, I_D = 1.5A$	
Diode Forward Voltage	V_{SD}	_		1.5	V	$V_{GS} = 0V, I_{S} = 3.0A$	
DYNAMIC CHARACTERISTICS (Note 7)							
Input Capacitance	Ciss	_	354	_		V _{DS} = 25V, f = 1.0MHz, V _{GS} = 0V	
Output Capacitance	Coss	_	41	_	pF		
Reverse Transfer Capacitance	Crss	_	4	_			
Gate Resistance	R _G	_	2.6	_	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	
Total Gate Charge	Q_G	_	12.6	_		$V_{DD} = 480V, I_D = 2.5A,$ $V_{GS} = 10V$	
Gate-Source Charge	Q_{GS}	_	1.7	_	nC		
Gate-Drain Charge	Q_{GD}	_	7.1	_			
Turn-On Delay Time	t _{D(ON)}	_	10.6	_	ns	$V_{DD} = 300V, R_G = 25\Omega, I_D = 2.5A,$ $V_{GS} = 10V$	
Turn-On Rise Time	t _R	_	22	_			
Turn-Off Delay Time	t _{D(OFF)}	_	34	_			
Turn-Off Fall Time	t _F	_	28	_			
Body Diode Reverse Recovery Time	t _{RR}	_	198	_	ns	$dI/dt = 100A/\mu s$, $V_{DS} = 100V$,	
Body Diode Reverse Recovery Charge	Q_{RR}	_	952	_	nC	I _F = 2.5A	

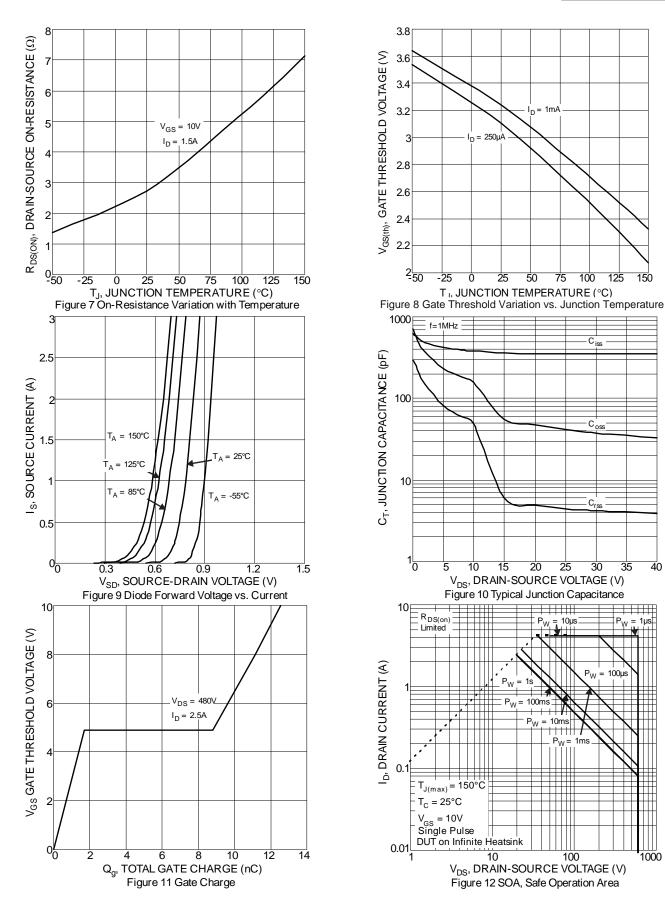
Notes:

- 5. Device mounted on infinite heatsink.6. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad layout.
- 7. Guaranteed by design. Not subject to production testing.8. Short duration pulse test used to minimize self-heating effect.



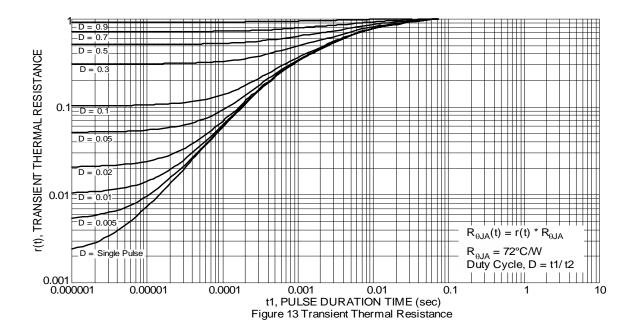






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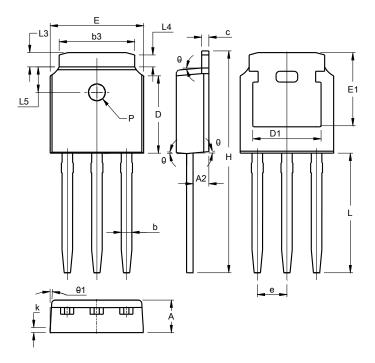




Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

TO251 (Type TH)



TO251 (Type TH)						
Dim	Min	Max	Тур			
Α	2.20	2.40	2.30			
A2	0.97	1.17	1.07			
b	0.68	0.90	0.78			
b3	5.20	5.50	5.33			
С	0.43	0.63	0.53			
D	5.98	6.22	6.10			
D1	5	.30 RE	F			
е	2.	286 BS	SC			
Е	6.40	6.80	6.60			
E1	4.63	5.03	4.83			
Н	16.22	16.82	16.52			
k	().40REI	-			
L	9.15	9.65	9.40			
L3	0.88	1.28	1.02			
L4	0.75 REF					
L5	1.65	1.95	1.80			
PØ	1.20					
θ	5°	9°	7°			
θ1	5°	9°	7°			
All Dimensions in mm						



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