

DMS3015SSS N-CHANNEL ENHANCEMENT MODE MOSFET WITH SCHOTTKY DIODE

Features

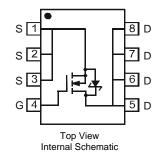
- DIOFET utilizes a unique patented process to monolithically integrate a MOSFET and a Schottky in a single die to deliver:
 - Low R_{DS(ON)} minimizes conduction losses •
 - Low V_{SD} reducing the losses due to body diode conduction .
 - Low Qrr lower Qrr of the integrated Schottky reduces body diode switching losses
 - Low gate capacitance (Qq/Qqs) ratio reduces risk of shootthrough or cross conduction currents at high frequencies
 - Avalanche rugged I_{AR} and E_{AR} rated
- Lead Free, RoHS Compliant (Note 1)
- "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability



- Case: SO-8
- 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 Below
- Marking Information: See Page 5 •
- Ordering Information: See Page 5
- Weight: 0.072 grams (approximate)



Top View



Maximum Ratings $@T_A = 25^{\circ}C$ unless otherwise specified

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	30	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 3) V_{GS} = 10V	Steady State	T _A = 25°C T _A = 85°C	I _D	11 6.6	A
Pulsed Drain Current (Note 4)			I _{DM}	80	A
Avalanche Current (Notes 4 & 5)			I _{AR}	17	A
Repetitive Avalanche Energy (Notes 4 & 5) L = 0.3mH			E _{AR}	43	mJ

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	PD	1.55	W
Thermal Resistance, Junction to Ambient $@T_A = 25^{\circ}C$ (Note 3)	R _{0JA}	81.3	°C/W
Operating and Storage Temperature Range	TJ, TSTG	-55 to +150	°C

Notes: 1. No purposefully added lead.

Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
Device mounted on 1in * 1in FR-4 PCB with 2oz. Copper. The value in any given application depends on the user's specific board design.

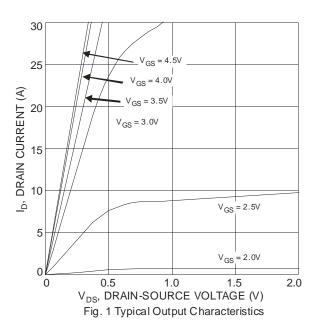
4. Repetitive rating, pulse width limited by junction temperature.

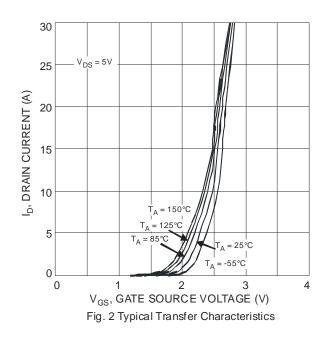
5. I_{AR} and E_{AR} rating are based on low frequency and duty cycles to keep $T_J = 25^{\circ}C$



Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 6)						- -	
Drain-Source Breakdown Voltage	BV _{DSS}	30	-	-	V	$V_{GS} = 0V, I_D = 250 \mu A$	
Zero Gate Voltage Drain Current	I _{DSS}	-	-	0.1	mA	$V_{DS} = 30V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 6)							
Gate Threshold Voltage	V _{GS(th)}	1.0	1.5	2.5	V	$V_{DS} = V_{GS}$, $I_D = 250 \mu A$	
Static Drain-Source On-Resistance		-	8.5	11.9	$\mathbf{m}\Omega$	$V_{GS} = 10V, I_D = 11A$	
	R _{DS (ON)}	-	9.5	14.9		$V_{GS} = 4.5V, I_D = 8.8A$	
Forward Transfer Admittance	Y _{fs}	-	18	-	S	$V_{DS} = 5V, I_{D} = 10A$	
Diode Forward Voltage	V _{SD}	-	0.45	0.55	V	$V_{GS} = 0V, I_{S} = 1A$	
DYNAMIC CHARACTERISTICS (Note 7)							
Input Capacitance	Ciss	-	1276	-	pF		
Output Capacitance	Coss	-	160	-	pF	−V _{DS} = 15V, V _{GS} = 0V, −f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	-	136	-	pF		
Gate Resistance	Rg	0.3	1.48	2.7	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$	
Total Gate Charge (V _{GS} = 4.5V)	Qg	-	14.3	-	nC	V _{DS} = 15V, V _{GS} = 4.5V, I _D = 8.8A	
Total Gate Charge (V _{GS} = 10V)	Qq	-	30.6	-	nC	$V_{DS} = 15V, V_{GS} = 10V, I_D = 8.8A$	
Gate-Source Charge	Q _{gs}	-	3.4	-	nC		
Gate-Drain Charge	Q _{qd}	-	4.3	-	nC		
Turn-On Delay Time	t _{D(on)}	-	15.8	-	ns	$V_{GS} = 4.5V, V_{DS} = 15V,$ $R_G = 1.8\Omega, I_D = 8.8A$	
Turn-On Rise Time	tr	-	27.8	-	ns		
Turn-Off Delay Time	t _{D(off)}	-	29.7	-	ns		
Turn-Off Fall Time	tf	-	13.6	-	ns		

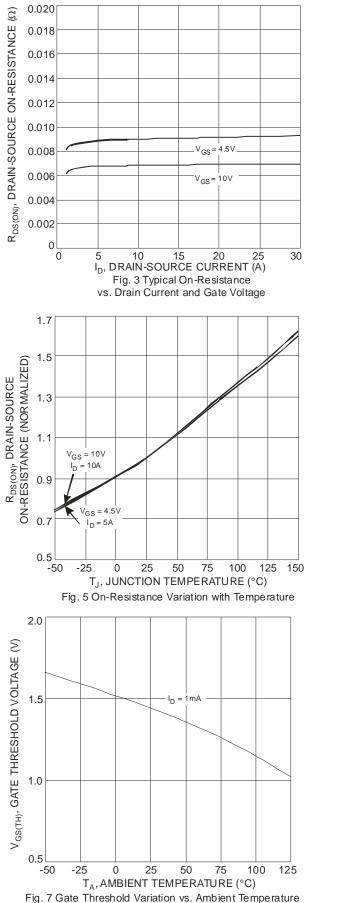
 Short duration pulse test used to minimize self-heating effect.
Guaranteed by design. Not subject to production testing. Notes:

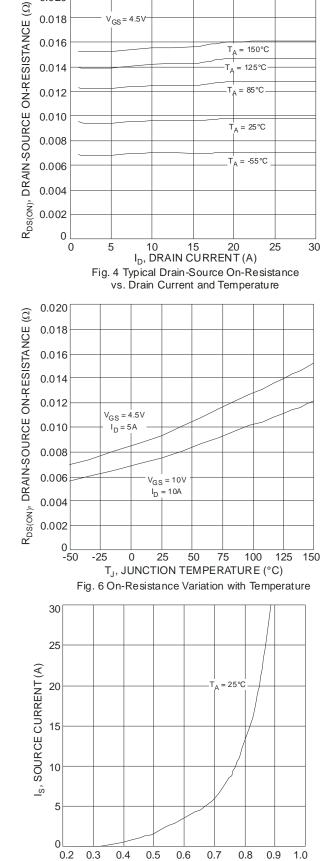




NEW PRODUCT







V_{SD}, SOURCE-DRAIN VOLTAGE (V)

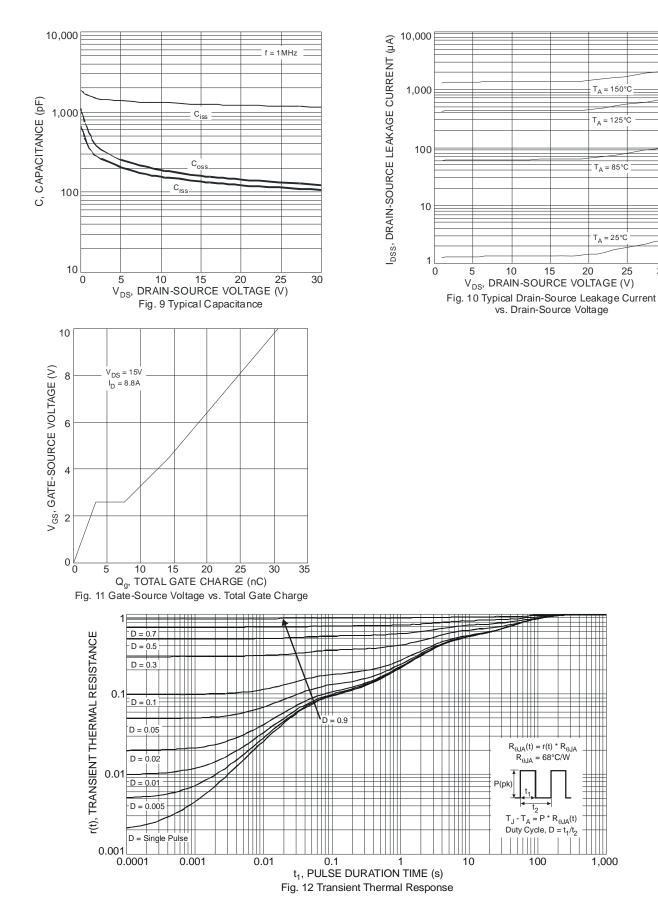
Fig. 8 Diode Forward Voltage vs. Current

0.020

DMS3015SSS Document number: DS32096 Rev. 4 - 2

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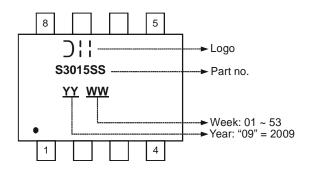


Ordering Information (Note 8)

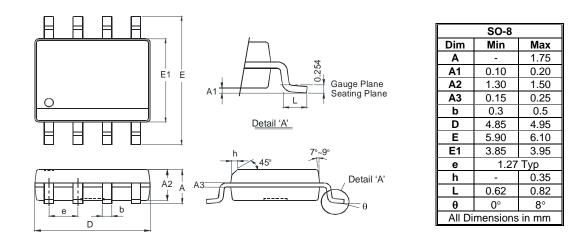
Part Number	Case	Packaging
DMS3015SSS-13	SO-8	2500 / Tape & Reel

Notes: 8. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

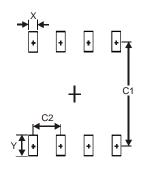
Marking Information



Package Outline Dimensions



Suggested Pad Layout



Dimensions	Value (in mm)
Х	0.60
Y	1.55
C1	5.4
C2	1.27



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