

### Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$ $T_A = 25^\circ C$
-30V	50m $\Omega$ @ $V_{GS} = -10V$	-4.0A
	72m $\Omega$ @ $V_{GS} = -4.5V$	-3.3A

### Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead-Free Finish; RoHS compliant (Note 1)**
- **Halogen and Antimony Free. "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

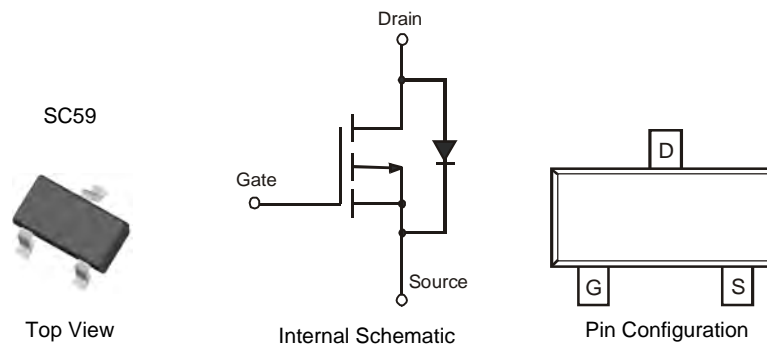
### Description and Applications

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

- Load Switch
- DC-DC Converters
- Power management functions

### Mechanical Data

- Case: SC59
- Case Material – Molded Plastic. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.014 grams (approximate)

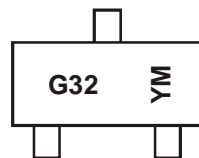


### Ordering Information (Note 3)

Part Number	Case	Packaging
DMG3407SSN-7	SC59	3000 / Tape & Reel

Notes: 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free

### Marking Information



G32 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: X = 2010)  
 M = Month (ex: 9 = September)

#### Date Code Key

Year	2010	2011	2012	2013	2014	2015	2016
Code	X	Y	Z	A	B	C	D

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

**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V <sub>DSS</sub>	-30	V
Gate-Source Voltage			V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 5) V <sub>GS</sub> = -10V	Steady State	T <sub>A</sub> = 25°C T <sub>A</sub> = 70°C	I <sub>D</sub>	-4.0 -3.2	A
	t<10s	T <sub>A</sub> = 25°C T <sub>A</sub> = 70°C	I <sub>D</sub>	-4.6 -3.6	A
Continuous Drain Current (Note 5) V <sub>GS</sub> = -4.5V	Steady State	T <sub>A</sub> = 25°C T <sub>A</sub> = 70°C	I <sub>D</sub>	-3.3 -2.6	A
	t<10s	T <sub>A</sub> = 25°C T <sub>A</sub> = 70°C	I <sub>D</sub>	-3.9 -3.1	A
Pulsed Drain Current (10μs pulse, duty cycle = 1%)			I <sub>DM</sub>	-30	A
Maximum Body Diode Forward Current (Note 5)			I <sub>S</sub>	-2.0	A

**Thermal Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 4)	T <sub>A</sub> = 25°C	P <sub>D</sub>	1.1	W
	T <sub>A</sub> = 70°C		0.7	
Thermal Resistance, Junction to Ambient (Note 4)	Steady state	R <sub>θJA</sub>	166	°C/W
	t<10s		118	
Total Power Dissipation (Note 5)	T <sub>A</sub> = 25°C	P <sub>D</sub>	1.8	W
	T <sub>A</sub> = 70°C		1.1	
Thermal Resistance, Junction to Ambient (Note 5)	Steady state	R <sub>θJA</sub>	98	°C/W
	t<10s		71	
Thermal Resistance, Junction to Case (Note 5)		R <sub>θJC</sub>	18	
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise stated

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 6)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-30	-	-	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
Zero Gate Voltage Drain Current T <sub>J</sub> = 25°C	I <sub>DSS</sub>	-	-	-1	μA	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	-	-	±100	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 6)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	-1.0	-1.5	-2.1	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	-	39	50	mΩ	V <sub>GS</sub> = -10V, I <sub>D</sub> = -4.1A
		-	56	72		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.0A
Forward Transfer Admittance	Y <sub>fs</sub>	-	8.2	-	S	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4A
Diode Forward Voltage	V <sub>SD</sub>	-	-0.75	-1.1	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1A
<b>DYNAMIC CHARACTERISTICS (Note 7)</b>						
Input Capacitance	C <sub>iss</sub>	466	582	700	pF	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	80	114	148		
Reverse Transfer Capacitance	C <sub>riss</sub>	47	76	105		
Gate Resistance	R <sub>g</sub>	2	5	8	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge	Q <sub>g</sub>	10.6	13.3	16	nC	V <sub>GS</sub> = -10V, V <sub>DS</sub> = -15V, I <sub>D</sub> = -4A
Total Gate Charge	Q <sub>g</sub>	5.2	6.5	8.5		
Gate-Source Charge	Q <sub>gs</sub>	1.3	1.7	2		
Gate-Drain Charge	Q <sub>gd</sub>	1.1	1.9	2.7		
Turn-On Delay Time	t <sub>D(on)</sub>	-	6.0	-	ns	V <sub>GS</sub> = -10V, V <sub>DS</sub> = -15V, R <sub>L</sub> = 3.6Ω, R <sub>G</sub> = 3Ω
Turn-On Rise Time	t <sub>r</sub>	-	12.9	-		
Turn-Off Delay Time	t <sub>D(off)</sub>	-	35.4	-		
Turn-Off Fall Time	t <sub>f</sub>	-	30.7	-		
Reverse Recovery Time	t <sub>rr</sub>	6.8	8.5	10.2	ns	I <sub>F</sub> = 4A, di/dt = 100A/μs
Reverse Recovery Charge	Q <sub>rr</sub>	5.5	7.0	8.5	nC	

Notes: 2. Device mounted on FR-4 PCB with minimum recommended pad layout, single sided. The power dissipation P<sub>D</sub> is based on t<10s R<sub>θJA</sub>  
 3. Device mounted on 1" x 1" FR-4 PCB with high coverage 2 oz. Copper, single sided. The power dissipation P<sub>D</sub> is based on t<10s R<sub>θJA</sub>  
 4. Short duration pulse test used to minimize self-heating effect.  
 5. Guaranteed by design. Not subject to production testing.