





P-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(ON)} max	I _D max T _A = +25°C
201/	$11m\Omega$ @ $V_{GS} = -20V$	-9.9A
-30V	$17m\Omega$ @ $V_{GS} = -6V$	-8.2A

Description

This 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.

Applications

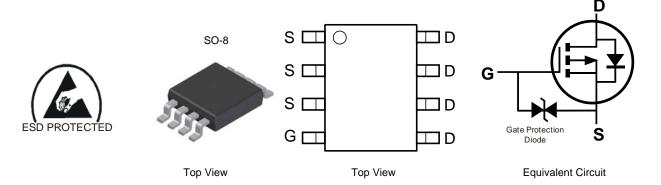
- Backlighting
- Power Management Functions
- DC-DC Converters

Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- 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 Indicator: See diagram
- Terminals: Finish Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.075 grams (approximate)



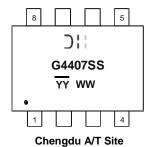
Ordering Information (Note 4)

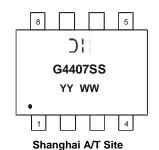
Part Number	Case	Packaging
DMG4407SSS-13	SO-8	2500/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. 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





The Manufacturer's Marking
G4407SS = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Year (ex: 13 = 2013)
WW = Week (01 - 53)

YY = Date Code Marking for SAT (Shanghai Assembly/ Test site)
YY = Date Code Marking for CAT (Chengdu Assembly/ Test site)



Maximum Ratings (@ $T_A = +25$ °C, unless otherwise specified.)

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-30	V
Gate-Source Voltage			V _{GSS}	±25	V
Continuous Pusis Courset (Nato C) // 201/	Steady State	$T_A = +25$ °C $T_A = +70$ °C	I _D	-9.9 -7.9	А
Continuous Drain Current (Note 6) V _{GS} = -20V	t<10s	$T_A = +25$ °C $T_A = +70$ °C	I _D	-12.5 -10.0	А
Continuous Prain Current (Note 6) V 6V	Steady State	$T_A = +25$ °C $T_A = +70$ °C	I _D	-8.2 -6.5	А
Continuous Drain Current (Note 6) V _{GS} = -6V	t<10s	$T_A = +25$ °C $T_A = +70$ °C	I _D	-11.0 -8.7	А
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	3.0	Α
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I _{DM}	-80	Α

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		P_{D}	1.45	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	D	88	°C/W
Thermal Resistance, Junction to Ambient (Note 5)	t<10s	$R_{\theta JA}$	50	°C/W
Total Power Dissipation (Note 6)		P_{D}	1.82	W
Thermal Begintance, Junction to Ambient (Note 6)	Steady State	6	70	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	t<10s	$R_{\theta JA}$	41	°C/W
Thermal Resistance, Junction to Case (Note 6)		$R_{ heta JC}$	7.6	°C/W
Operating and Storage Temperature Range		$T_{J_i} T_{STG}$	-50 to 155	°C

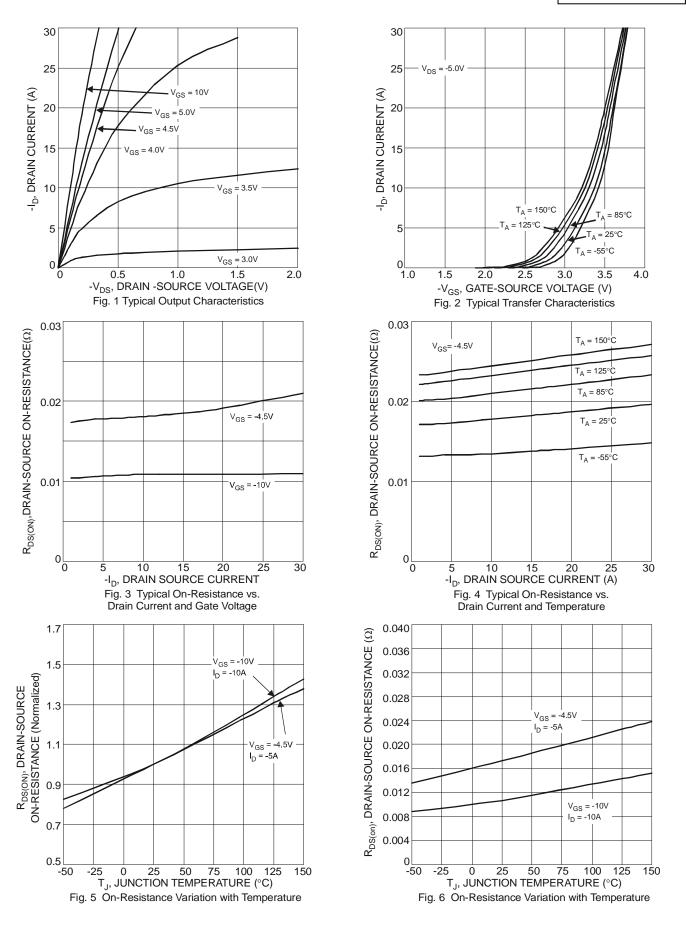
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 7)					•		
Drain-Source Breakdown Voltage	BV _{DSS}	-30	_	_	V	$V_{GS} = 0V, I_D = -250\mu A$	
Zero Gate Voltage Drain Current	I _{DSS}	_	_	-1	μA	$V_{DS} = -30V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	_	_	±10	μA	$V_{GS} = \pm 25V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 7)			•	•			
Gate Threshold Voltage	V _{GS(th)}	-1.7	_	-3.0	V	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$	
		_	9	11		$V_{GS} = -20V, I_D = 12A$	
Static Drain-Source On-Resistance	R _{DS} (ON)	_	10	13	mΩ	$V_{GS} = -10V, I_D = 10A$	
		_	12.7	17		$V_{GS} = -6V, I_D = 10A$	
Forward Transfer Admittance	Y _{fs}	_	21	_	S	$V_{DS} = -5V, I_{D} = -10A$	
Diode Forward Voltage		_	-0.7	-1.0	V	V _{GS} = 0V, I _S = -1A	
DYNAMIC CHARACTERISTICS (Note 8)						•	
Input Capacitance	C _{iss}	_	2246	_	pF	451/11/	
Output Capacitance	Coss	_	352	_	pF	$V_{DS} = -15V, V_{GS} = 0V,$ f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	_	294	_	pF		
Gate resistance	Rg	_	5.1	_	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	
Total Gate Charge (V _{GS} = 4.5V)	Qg	_	20.5	_	nC		
Total Gate Charge (V _{GS} = 10V)	Qg	_	41	_	nC	$V_{GS} = -10V, V_{DS} = -15V,$ $I_{D} = -12A$	
Gate-Source Charge	Q _{gs}	_	7.6	_	nC		
Gate-Drain Charge	Q _{gd}	_	8.0	_	nC		
Turn-On Delay Time	t _{D(on)}	_	11.3	_	ns		
Turn-On Rise Time	t _r	_	15.4	_	ns	$V_{DD} = -15V, V_{GS} = -10V,$	
Turn-Off Delay Time	t _{D(off)}	_	38.0	_	ns	$R_L = 1.25\Omega$, $R_G = 3\Omega$,	
Turn-Off Fall Time	t _f	_	22.0	_	ns		

Notes:

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







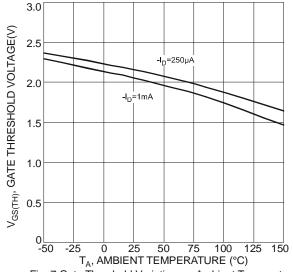
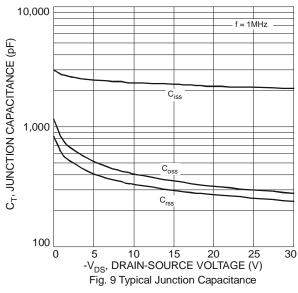
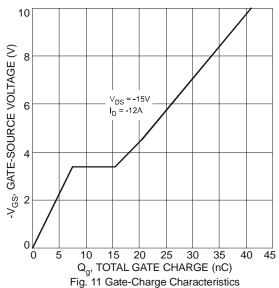


Fig. 7 Gate Threshold Variation vs. Ambient Temperature





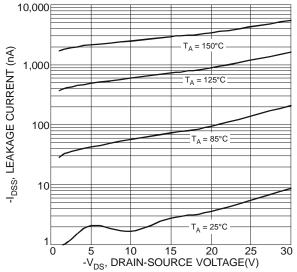
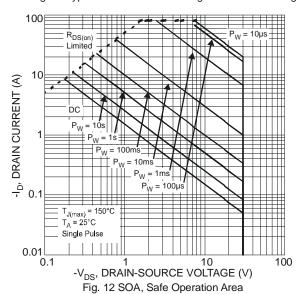
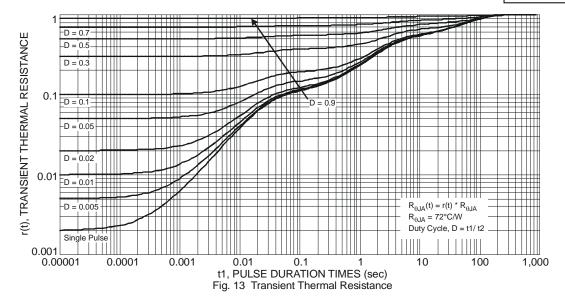


Fig. 10 Typical Drain-Source Leakage Current vs. Voltage

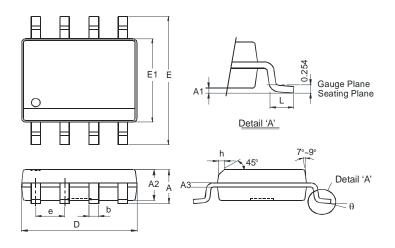






Package Outline Dimensions

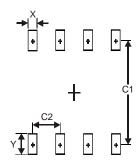
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SO-8				
Dim	Min	Max		
Α	-	1.75		
A1	0.10	0.20		
A2	1.30	1.50		
A3	0.15	0.25		
b	0.3	0.5		
D	4.85	4.95		
Е	5.90	6.10		
E1	3.85	3.95		
е	1.27 Typ			
h	-	0.35		
Ĺ	0.62	0.82		
θ	0°	8°		
All Dimensions in mm				

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for latest version.



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



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