



Common Drain Dual N-channel Enhancement Mode MOSFET

GENERAL DESCRIPTION

The GP9926A is Common Drain Dual N-channel enhancement mode MOSFET designed by advanced trench process technology provides the designer with the best combination of fast switching response, low on-resistance, and low cost.

The TSSOP8 package is space saving surface mount for all commercial and industrial applications. It is suitable for low voltage, low loss and fast switching applications such as Li-ion battery pack applications.

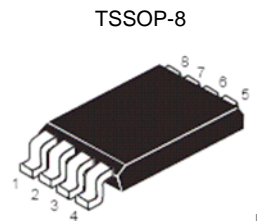
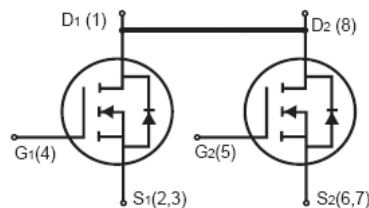
FEATURES

- 5.2A, 20V, $R_{DS(ON)} = 45m\Omega @ V_{GS} = 2.5V$
- 6.0A, 20V, $R_{DS(ON)} = 30m\Omega @ V_{GS} = 4.5V$
- High performance trench technology for extremely low $R_{DS(ON)}$
- Low gate charge
- Fast switching speed
- High Power and Current handling capability

APPLICATIONS

- Li-ion Battery Pack

PACKAGE PIN OUT



MARKING INFORMATION

Part Number	Marking	Package
GP9926A	xxww	TSSOP-8

xx: Year ww: Production date code

ABSOLUTE MAXIMUM RATINGS (TA = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current $I_D @ T_A = 25^\circ C$	I_D	6	A
Pulsed Drain Current ¹ I_{DM}	I_{DM}	30	A
Total Power Dissipation $P_D @ T_A = 25^\circ C$	P_D	2.0	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operation Junction Temperature Range	T_J	-55 to +150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient	$R_{thj-amb}$	62.5	°C/W
Thermal Resistance, Junction-to-Case	R_{thj-c}	30	°C/W

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted)						
Parameter	Symbol	Test Conditions	GP9926A			Units
			Min	Typ	Max	
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =500μA	20			V
Static Drain-source On-Resistance	R _{DS(ON)}	V _{GS} =2.5V, I _D =5.2A		24	45	mΩ
		V _{GS} =4.5V, I _D =6.0A		17	30	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =500μA	0.6	0.8		V
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =6.0A	7	13		S
Drain-Source Leakage Current (T _j =25°C)	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-Source Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Total Gate Charge ²	Q _g	I _D =6.0A		7.6		nC
Gate-Source Charge	Q _{gs}	V _{DS} =10V		1.2		nC
Gate-Drain ("Miller") Charge	Q _{gd}	V _{GS} =4.5V		2.4		nC
Turn-On Delay Time ²	t _{d(on)}	V _{DS} =10V		10		ns
Turn-On Rise Time	t _r	I _D =1A		12		ns
Turn-Off Delay Time	t _{d(off)}	R _G =6Ω, V _{GS} =4.5V		18		ns
Turn-Off Fall Time	t _f	R _D =10Ω		8		ns
Input Capacitance	C _{iss}	V _{GS} =0V		860		pF
Output Capacitance	C _{oss}	V _{DS} =8V		160		pF
Reverse Transfer Capacitance	C _{rss}	f=1.0MHz		110		pF

SOURCE-DRAIN DIODE						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Continuous Source Current (Body Diode)	I _s	V _D =V _G =0V, V _S =1.2V			1.7	A
Pulsed Source Current (Body Diode)	I _{SM}				16	A
Forward On Voltage ²	V _{SD}	T _j =25°C, I _s =1.7A, V _{GS} =0V			1.1	V

Notes:

1. Pulse width limited by safe operating area.
2. Pulse width ≤ 300μs, duty cycle ≤ 2%.

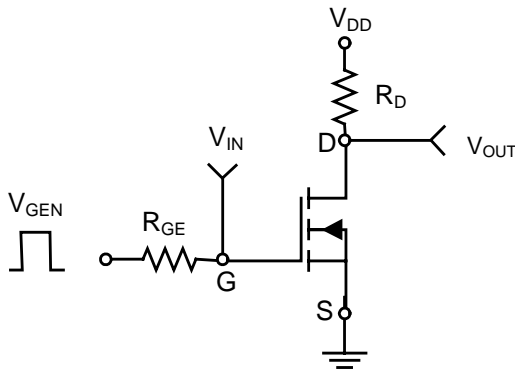


Fig 1. Switching Time Circuit

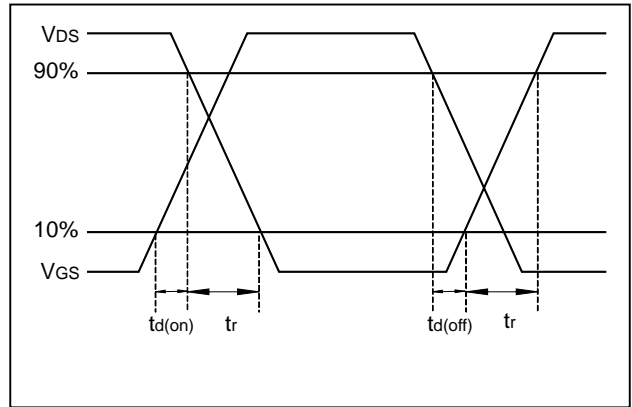


Fig 2. Switching Time Waveform

Package Information

TSSOP- 8 DIMENSION

Symbol	Dimensions in millimeters		Dimensions in inches	
	Min	Max	Min	Max
A	1.05	1.20	0.041	0.047
A1	0.05	0.15	0.002	0.006
A2	---	1.05	---	0.04
B	0.20	0.28	0.008	0.011
C	0.127		0.005	
D	2.90	3.20	0.114	0.125
E	6.20	6.60	0.244	0.260
E1	4.30	4.50	0.169	0.177
e	0.65BSC		0.025BSC	
L	0.50	0.70	0.020	0.028
θ	0°	8°	0°	8°

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