



9926A

Common Drain N-Channel Enhancement Mode MOSFET

● Features

VDS	VGS	RDSon TYP	ID
20V	±12V	21mR@4V5	6A
		22mR@3V85	
		26mR@2V5	

Advanced trench process technology

High Density Cell Design for Ultra Low On-Resistance

High Power and Current handling capability

Fully Characterized Avalanche Voltage and Current

● General Description

Case: SOP8

Case Material: Molded Plastic. UL Flammability

Classification

Rating 94V-0

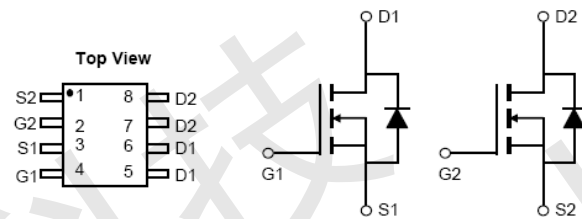
Moisture Sensitivity: Level 1 per J-STD-020C

Terminals: Solderable per MIL-STD-202, Method 208

● Applications

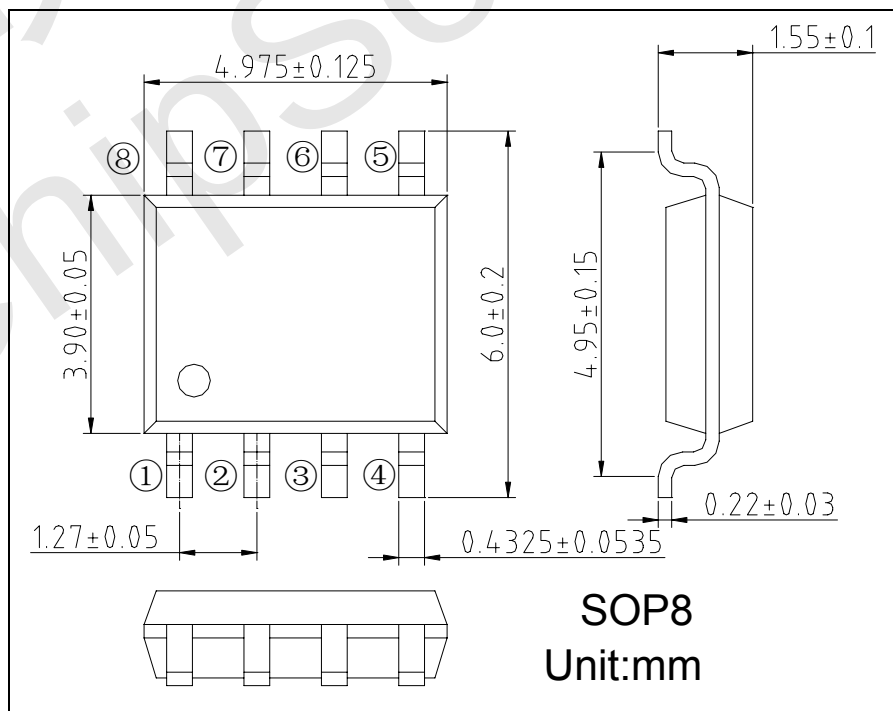
- Li-ion battery protection ;
- Load switch

● Pin configuration



PIN	NUMBER	NAME	FUNCTION
	SOP8		
1		S2	SOURCE2
2		G2	GATE2
3		S1	SOURCE1
4		G1	GATE1
5		D1	DRAIN1
6		D1	DRAIN1
7		D2	DRAIN2
8		D2	DRAIN2

● Package Information





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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	
Drain Current	I_D	6	A
Total Power Dissipation	P_D	1.25	mW
Operating and Storage Temperature Range	T_{opr}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55/150	$^\circ\text{C}$

● **Electrical Characteristics** @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS (Note 2)						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	--	--	V
Zero Gate Voltage Drain Curren	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$	--	--	1000	nA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$	--	--	± 100	nA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.75	1	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 2A$	--	21	24	mR
		$V_{GS} = 3.8V, I_D = 2A$	--	22	25	
		$V_{GS} = 2.5V, I_D = 2A$	--	26	34	
Forward Transconductance	G_{FS}	$V_{DS} = 5V, I_D = 4.5A$	--	10	--	S
Drain-Source Diode Forward Current	I_S		--	--	1.7	A
Source-drain (diode forward) voltage	V_{SD}	$V_{GS} = 0V, I_D = 1.25A$	--	0.8	1.0	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS} = 8V, V_{GS} = 0V$ $F = 1.0MHz$	--	600	--	pF
Output Capacitance	C_{OSS}		--	330	--	
Reverse Transfer Capacitance	C_{RSS}		--	140	--	
Total Gate Charge	Q_G	$V_{DS} = 10V, I_D = 6A,$ $V_{GS} = 4.5V$	--	10	15	nC
Gate-Source Charge	Q_{GS}		--	2.3	--	
Gate-Drain	Q_{GD}		--	2.9	--	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$T_{D(ON)}$	$V_{DD} = 10V, R_L = 10\Omega, I_D = 1A,$ $V_{GEN} = 4.5V, R_G = 6R$	--	8	20	ns
Rise Time	tr		--	10	25	
Turn-Off Delay Time	TD(OFF)		--	35	70	
Fall-Time	tf		--	30	60	



● Typical Performance Characteristics

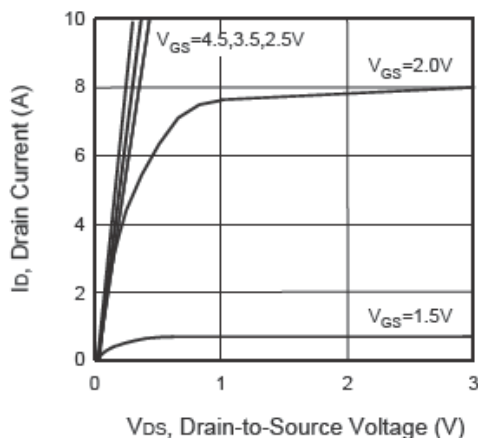


Figure 1. Output Characteristics

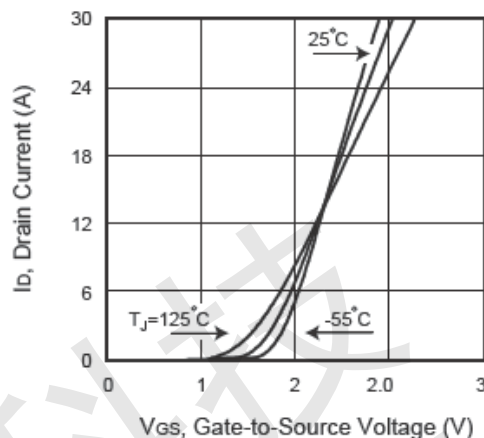


Figure 2. Transfer Characteristics

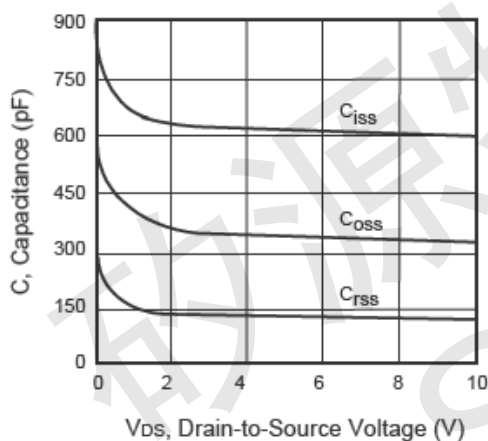


Figure 3. Capacitance

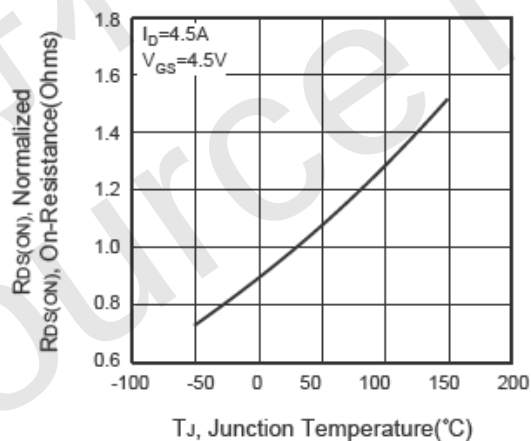


Figure 4. On-Resistance Variation with Temperature

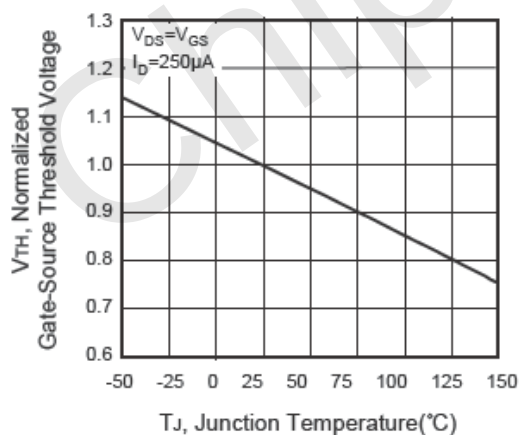


Figure 5. Gate Threshold Variation with Temperature

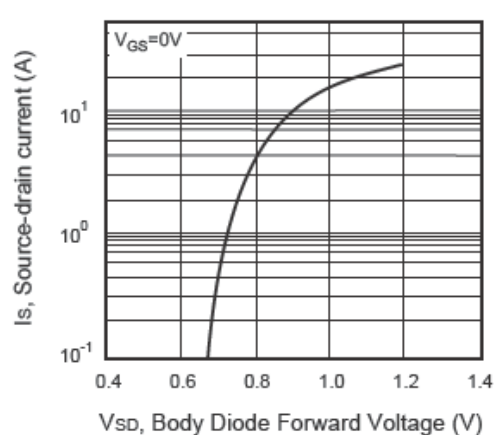


Figure 6. Body Diode Forward Voltage Variation with Source Current

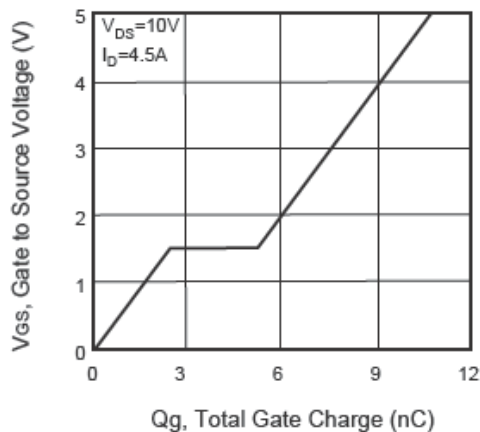


Figure 7. Gate Charge

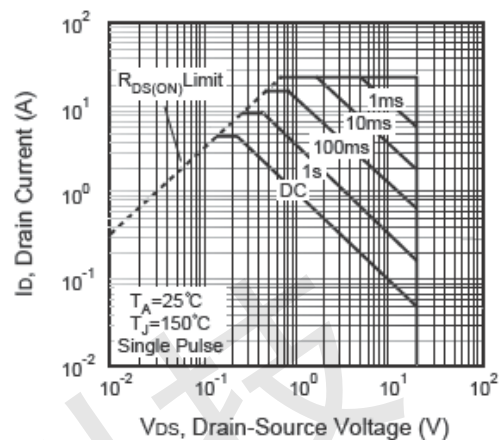


Figure 8. Maximum Safe Operating Area

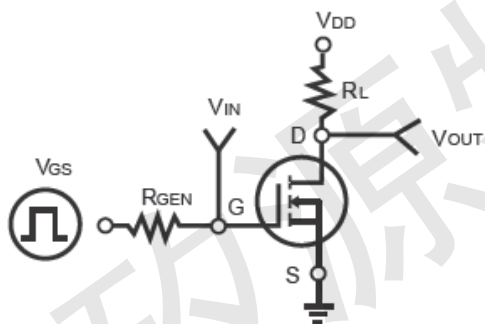


Figure 9. Switching Test Circuit

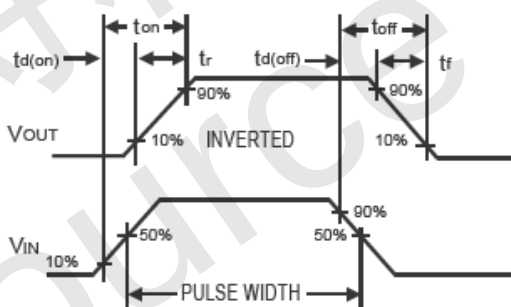


Figure 10. Switching Waveforms

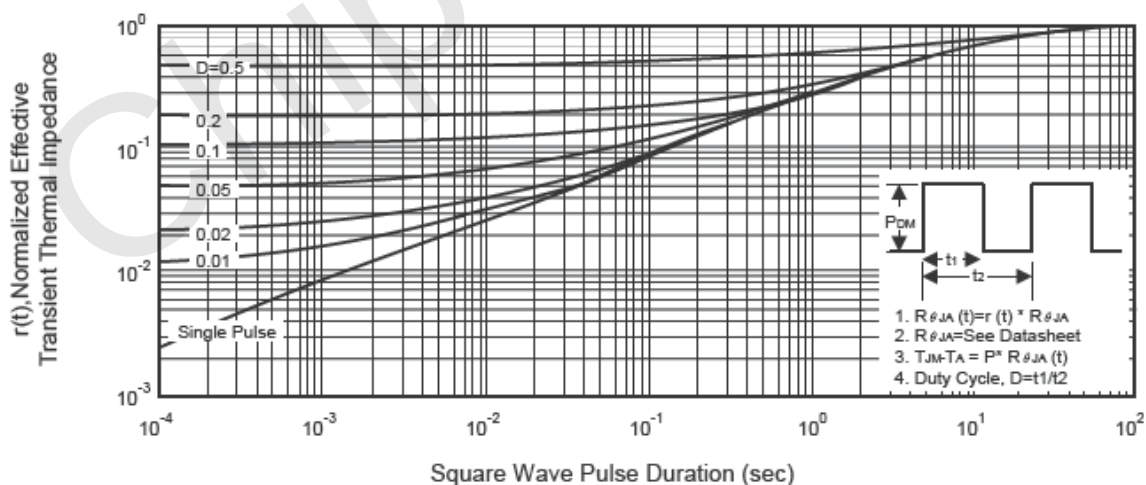


Figure 11. Normalized Thermal Transient Impedance Curve