



Common Drain N-Channel Enhancement Mode MOSFET

● Features

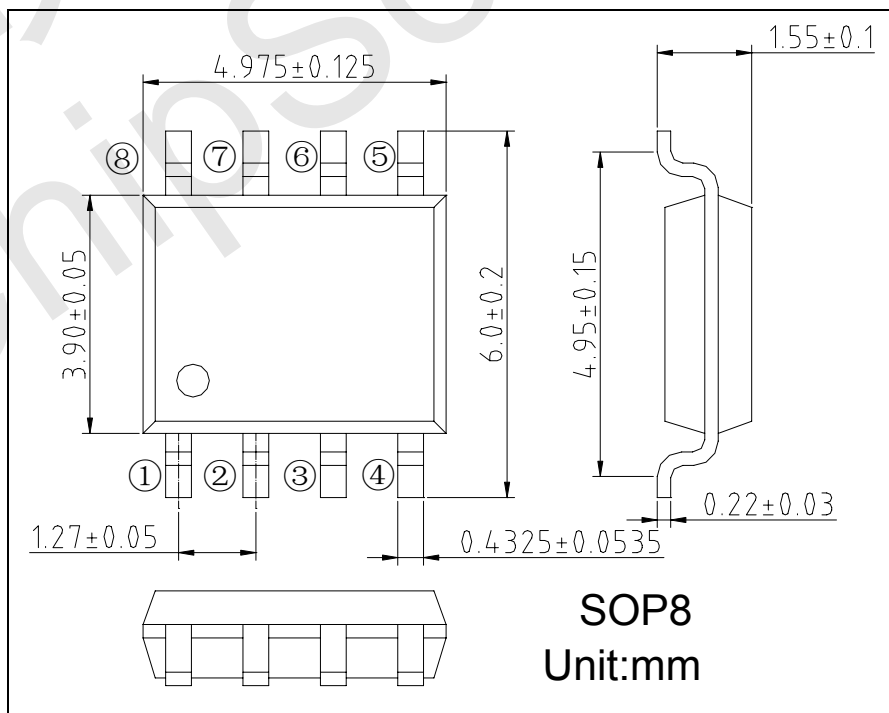
VDS	VGS	RDSon TYP	ID
20V	±12V	21mR@4V5	6A
		22mR@3V85	
		26mR@2V5	

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

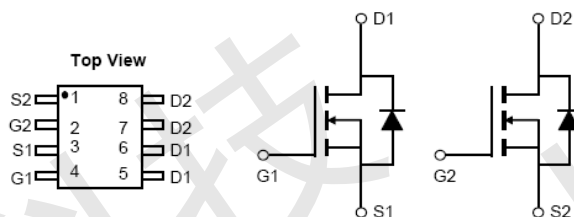
● Package Information



● 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



● **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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu\text{A}$	20	--	--	V
Zero Gate Voltage Drain Current	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	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	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}	$V_{DS} = 8V, V_{GS} = 0V$ $F = 1.0\text{MHz}$	--	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	t_r		--	10	25	
Turn-Off Delay Time	$T_{D(OFF)}$		--	35	70	
Fall-Time	t_f		--	30	60	



● Typical Performance Characteristics

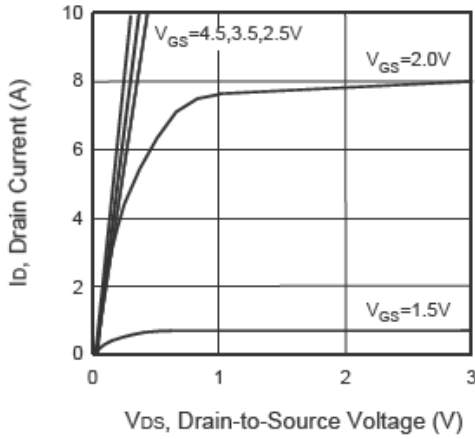


Figure 1. Output Characteristics

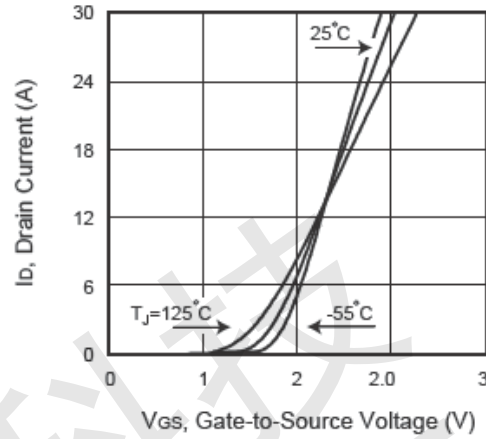


Figure 2. Transfer Characteristics

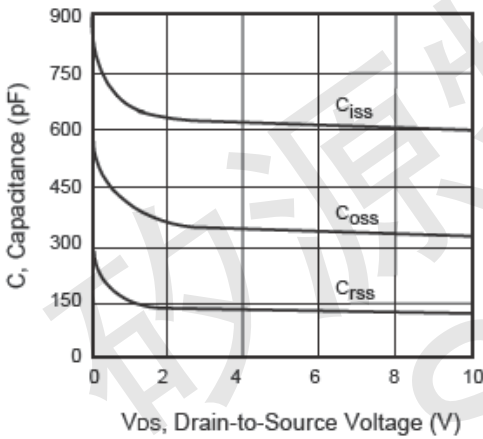


Figure 3. Capacitance

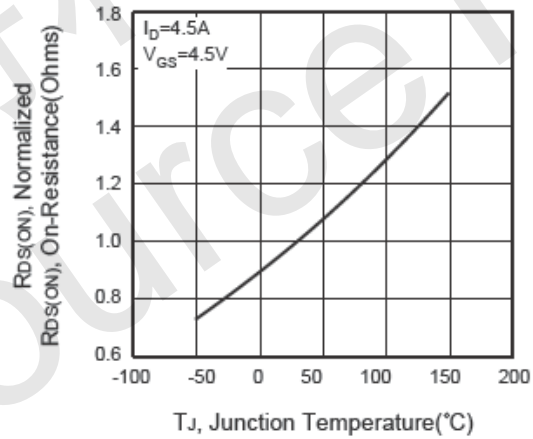


Figure 4. On-Resistance Variation with Temperature

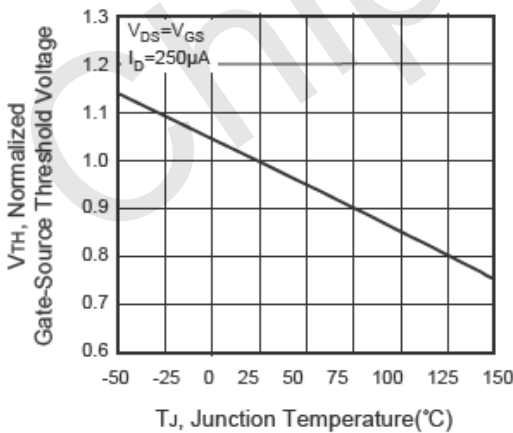


Figure 5. Gate Threshold Variation with Temperature

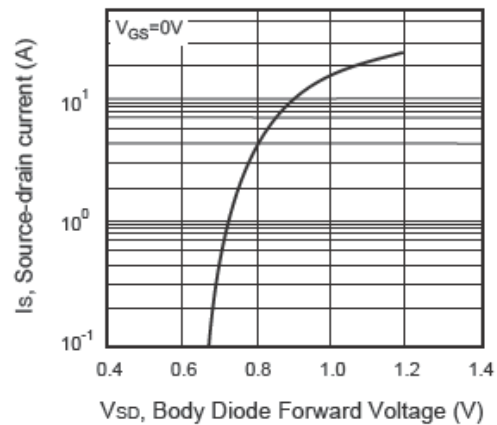


Figure 6. Body Diode Forward Voltage Variation with Source Current

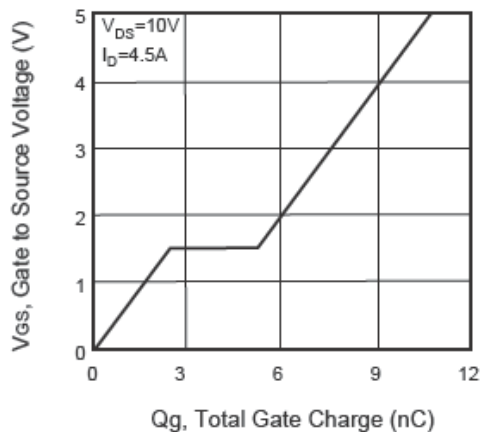


Figure 7. Gate Charge

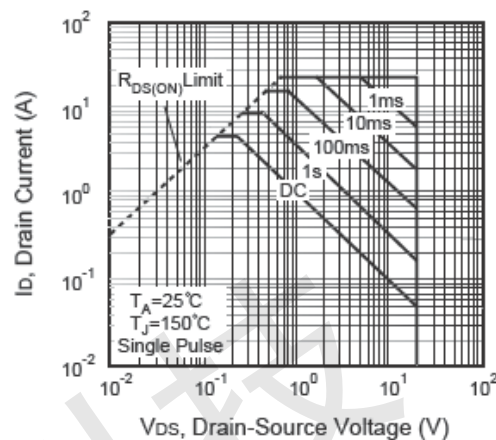


Figure 8. Maximum Safe Operating Area

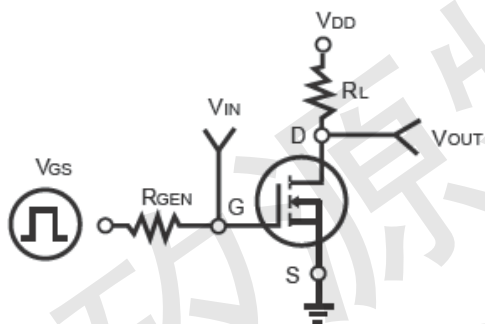


Figure 9. Switching Test Circuit

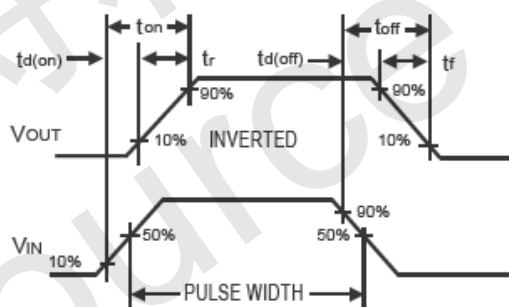


Figure 10. Switching Waveforms

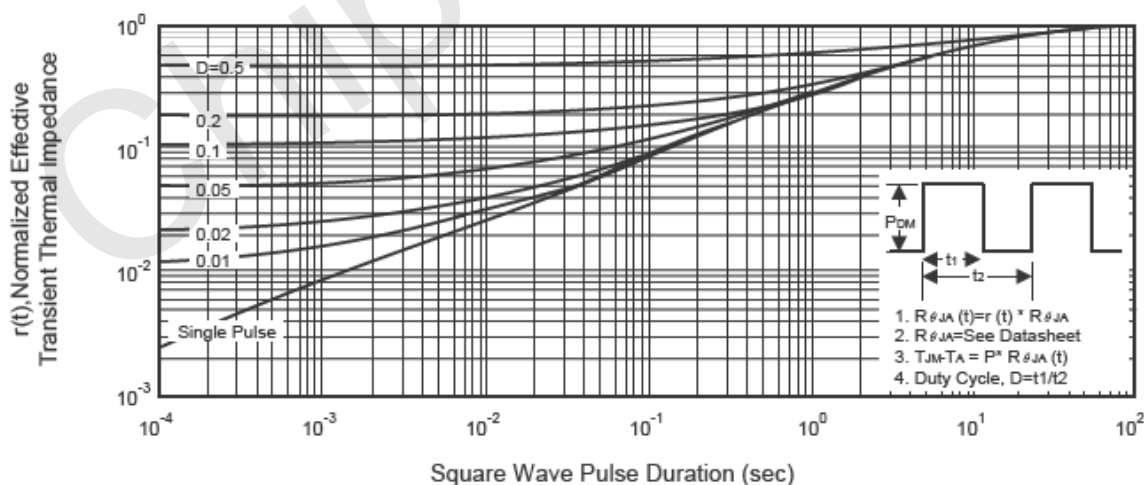


Figure 11. Normalized Thermal Transient Impedance Curve