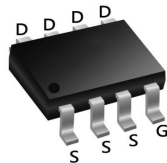


Product Summary

- V_{DS} -40V
- I_D -8A
- $R_{DS(ON)}$ TYP (at $V_{GS}=10V$) 30m Ω
- $R_{DS(ON)}$ TYP (at $V_{GS}=4.5V$) 40m Ω

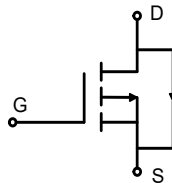


General Description

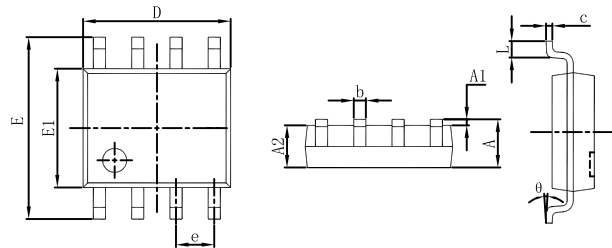
- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- Power Management Switches
- DC/DC Converter



SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.200	0.189	0.212
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^{\circ}C$, unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}C$	I_D	-8	A
	$T_C=100^{\circ}C$		-5	
Pulsed Drain Current ¹		I_{DM}	-30	A
Single Pulse Avalanche Energy ²		E_{AS}	12	mJ
Total Power Dissipation	$T_C=25^{\circ}C$	P_D	2.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}C$
Thermal Resistance from Junction-to-Ambient ³		$R_{\theta JA}$	25	$^{\circ}C/W$
Thermal Resistance from Junction-to-Case		$R_{\theta JC}$	2.5	$^{\circ}C/W$

8P04S8

ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise noted)

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-40	-	-	V
Gate-body Leakage current		I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T _J =25°C	I _{DSS}	V _{DS} = -40V, V _{GS} = 0V	-	-	-1	μA
	T _J =100°C			-	-	-100	
Gate-Threshold Voltage		V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.5	-2.5	V
Drain-Source On-Resistance ⁴		R _{DS(on)}	V _{GS} = -10V, I _D = -6A	-	30	40	mΩ
			V _{GS} = -4.5V, I _D = -3A	-	40	48	
Forward Transconductance ⁴		g _{fs}	V _{DS} = -10V, I _D = -6A	-	16	-	S
Dynamic Characteristics ⁵							
Input Capacitance		C _{iss}	V _{DS} = -20V, V _{GS} = 0V, f = 1MHz	-	1080	-	pF
Output Capacitance		C _{oss}		-	87	-	
Reverse Transfer Capacitance		C _{rss}		-	77	-	
Gate Resistance		R _g	f = 1MHz	-	11	-	Ω
Switching Characteristics ⁵							
Total Gate Charge		Q _g	V _{GS} = -10V, V _{DS} = -20V, I _D = -6A	-	17	-	nC
Gate-Source Charge		Q _{gs}		-	4.2	-	
Gate-Drain Charge		Q _{gd}		-	3.7	-	
Turn-On Delay Time		t _{d(on)}	V _{GS} = -10V, V _{DD} = -20V, R _G = 3Ω, I _D = -6A	-	5.9	-	ns
Rise Time		t _r		-	7.1	-	
Turn-Off Delay Time		t _{d(off)}		-	25	-	
Fall Time		t _f		-	8.2	-	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage ⁴		V _{SD}	I _S = -6A, V _{GS} = 0V	-	-	-1.2	V
Continuous Source Current	T _C =25°C	I _S	-	-	-	-8	A

Note :

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.
2. The EAS data shows Max. rating . The test condition is V_{DD}= -25V, V_{GS}= -10V, L= 0.1mH, I_{AS}= -19A.
3. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.

RATING AND CHARACTERISTIC CURVES (8P04S8)

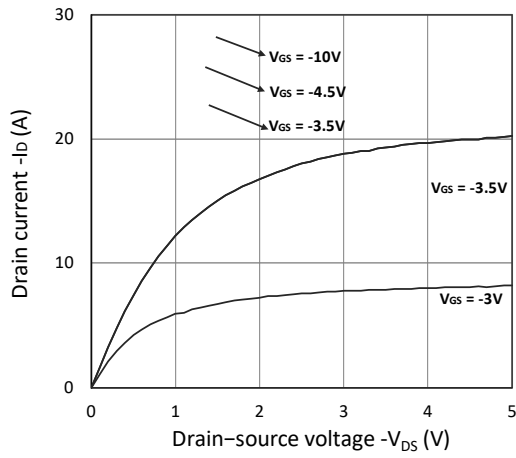


Figure 1. Output Characteristics

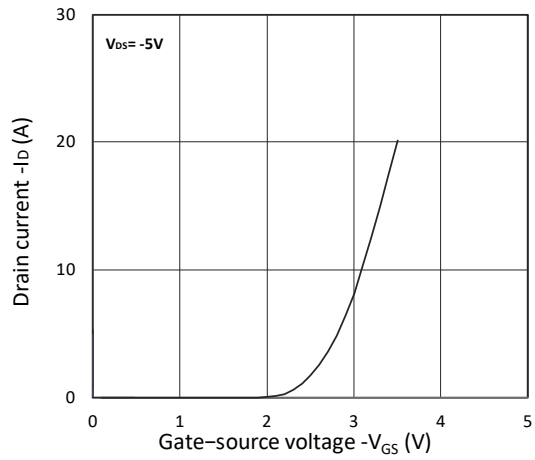


Figure 2. Transfer Characteristics

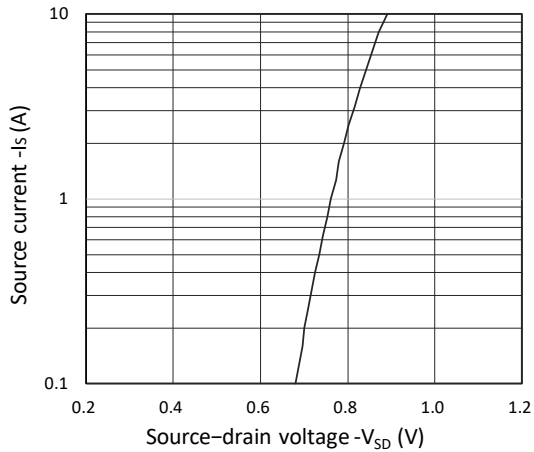


Figure 3. Forward Characteristics of Reverse

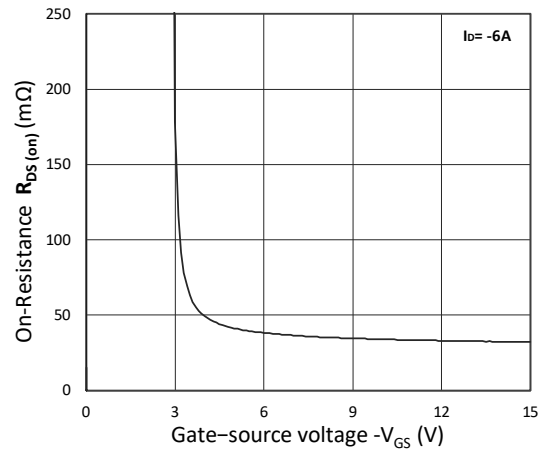


Figure 4. $R_{DS(on)}$ vs. V_{GS}

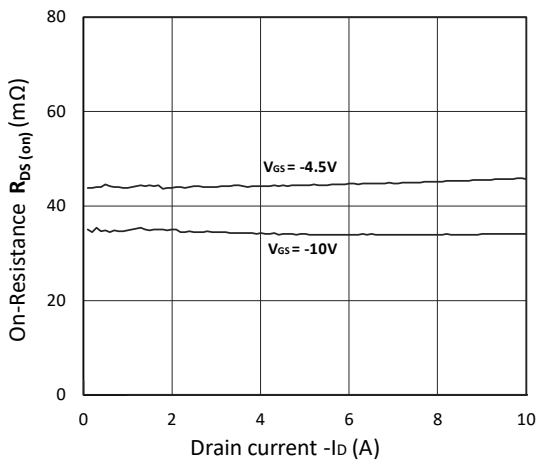


Figure 5. $R_{DS(on)}$ vs. I_D

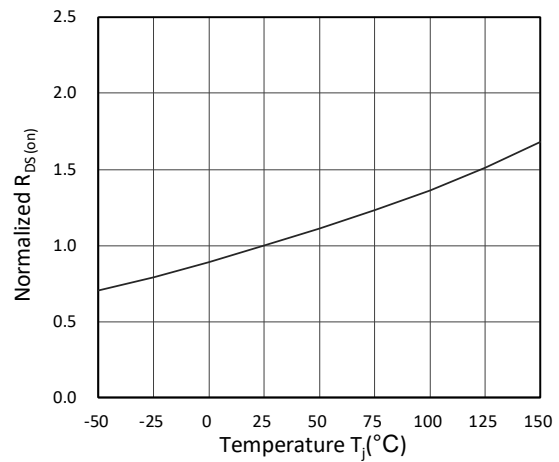


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

RATING AND CHARACTERISTIC CURVES (8P04S8)

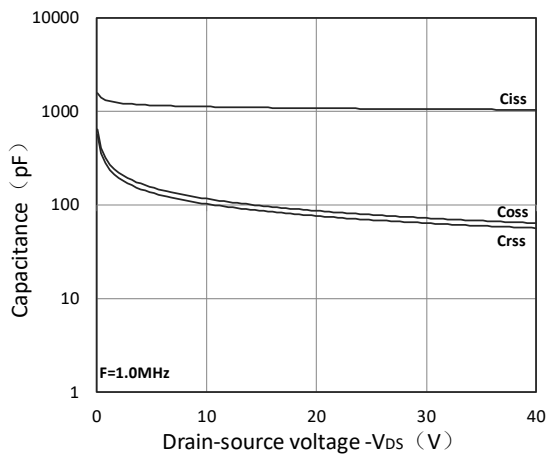


Figure 7. Capacitance Characteristics

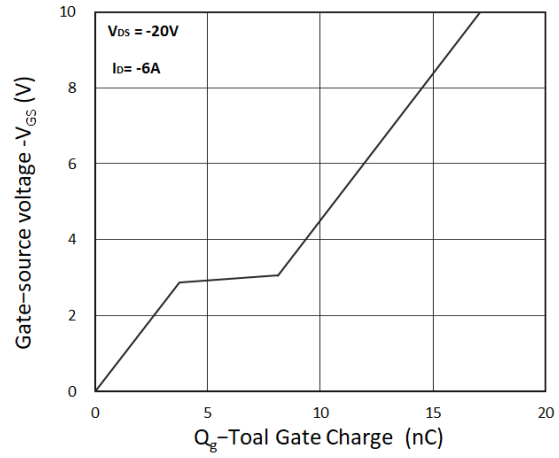


Figure 8. Gate Charge Characteristics

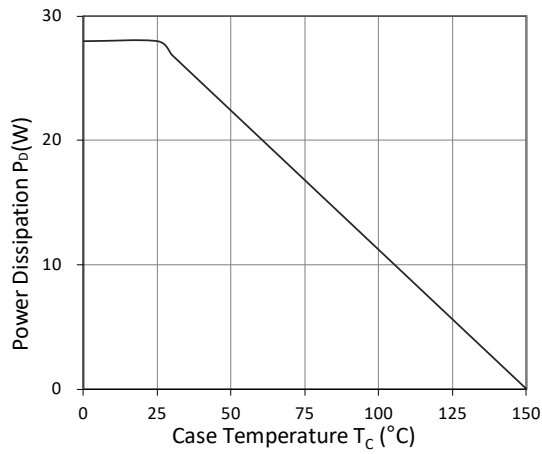


Figure 9. Power Dissipation

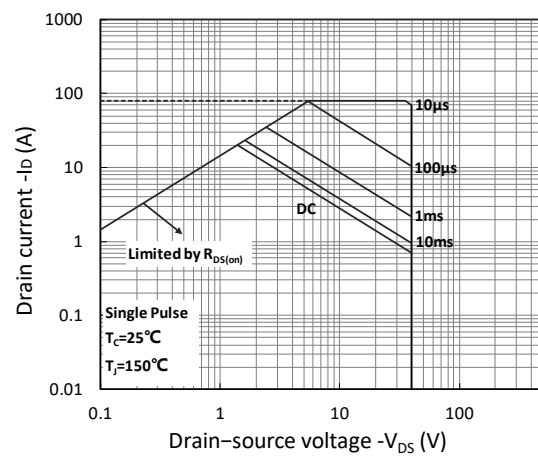
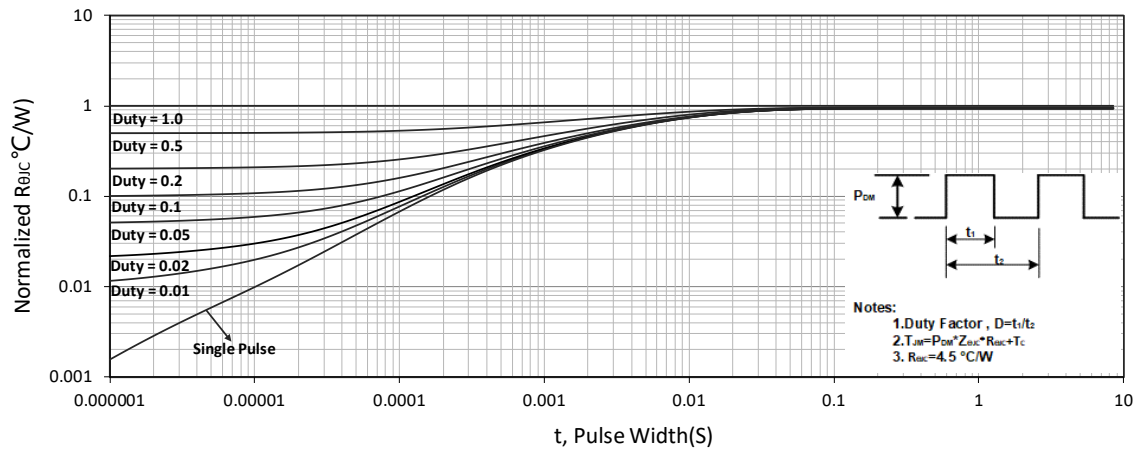


Figure 10. Safe Operating Area



RATING AND CHARACTERISTIC CURVES (8P04S8)

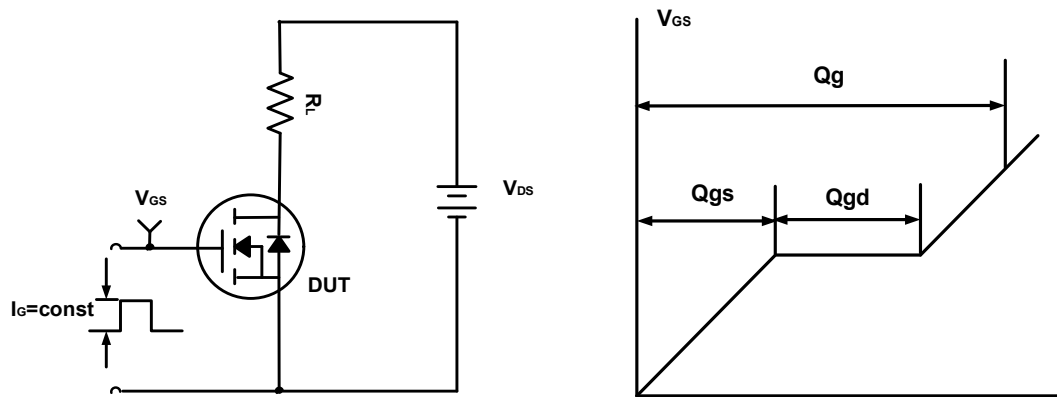


Figure A. Gate Charge Test Circuit & Waveforms

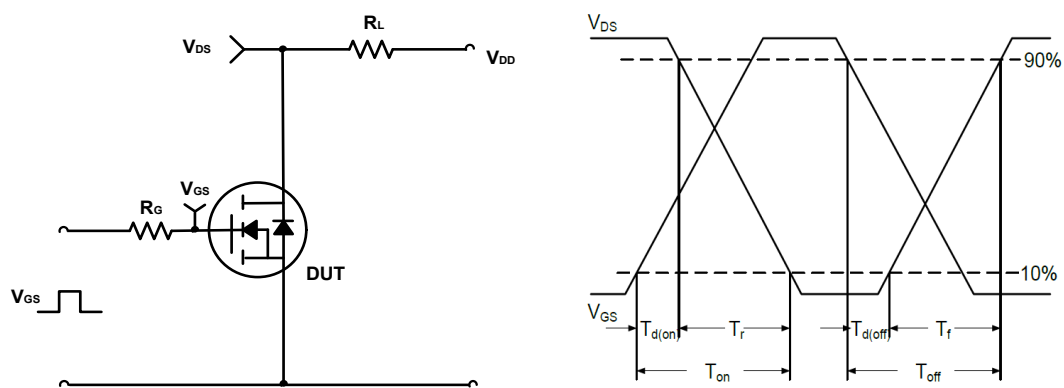


Figure B. Switching Test Circuit & Waveforms

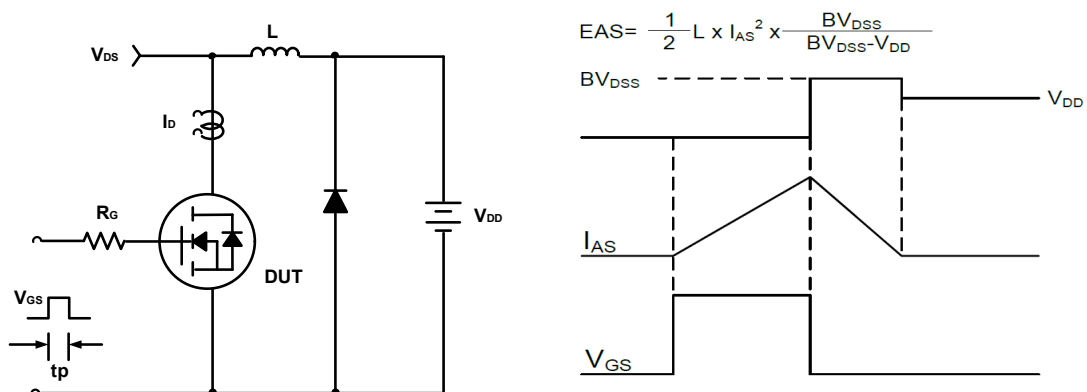


Figure C. Unclamped Inductive Switching Circuit & Waveforms