General Description

FSMOS® MOSFET is based on Oriental Semiconductor's unique device design to achieve low $R_{DS(ON)}$, low gate charge, fast switching and excellent avalanche characteristics. The low V_{th} series is specially designed to use in synchronous rectification power systems with low driving voltage.

Features

- Low $R_{DS(ON)}$ & FOM
- Extremely low switching loss

Absolute Maximum Ratings at T_j=25°C unless otherwise noted

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	60	V
Gate source voltage	V_{GS}	±20	V
Continuous drain current[1], T_C=25 °C	I_D	70	A
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	210	A
Continuous diode forward current[1], T_C=25 °C	I_S	70	A
Diode pulsed current[2], T_C=25 °C	$I_{S, Pulse}$	210	A
Power dissipation[3], T_C=25 °C	P_D	87	W
Single pulsed avalanche energy[5]	E_{AS}	66	mJ
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	$R_{\theta JC}$	1.44	°C/W
Thermal resistance, junction-ambient[4]	$R_{\theta JA}$	62	°C/W

Electrical Characteristics at T_j=25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	60			V	V_{GS}=0 V, I_D=250 μA
Gate threshold voltage	$V_{GS(th)}$	1.0		2.5	V	V_{DS}=V_{GS}, I_D=250 μA
Drain-source on-state resistance	$R_{DS(ON)}$		4.7	6	mΩ	V_{GS}=10 V, I_D=20 A
Drain-source on-state resistance	$R_{DS(ON)}$		6.4	10	mΩ	V_{GS}=4.5 V, I_D=10 A
Gate-source leakage current	I_{GSS}			100	nA	V_{GS}=20 V
				-100		V_{GS}=-20 V
Drain-source leakage current	I_{DSS}			1	μA	V_{DS}=60 V, V_{GS}=0 V
Gate resistance	R_G		2.8		Ω	f=1 MHz, Open drain

Dynamic Characteristics =0 70816=552 reW* nBT/F2 9.96.63 7261 7082 [50)]TJET276.53 706.17 40.11 19.92

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		2136		pF	V_{GS}=0 V, V_{DS}=50 V, f=100 kHz

Cp 5 8 4 n - U5 8 4

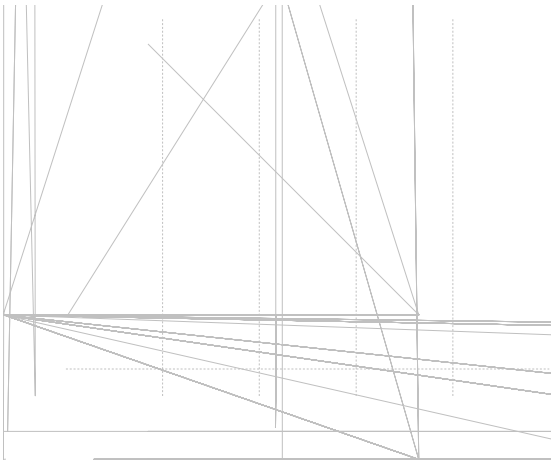


Figure 7. Threshold voltage

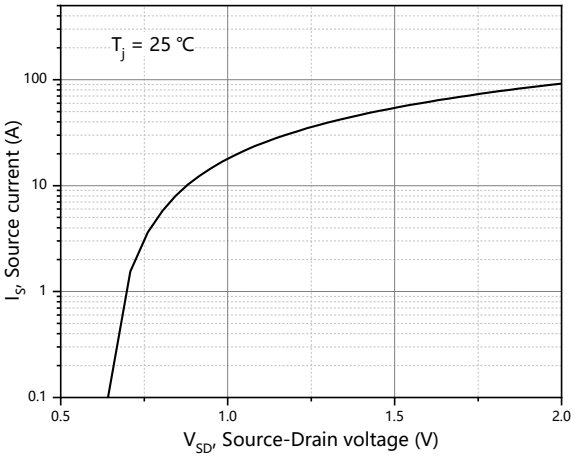


Figure 8. Forward characteristic of body diode

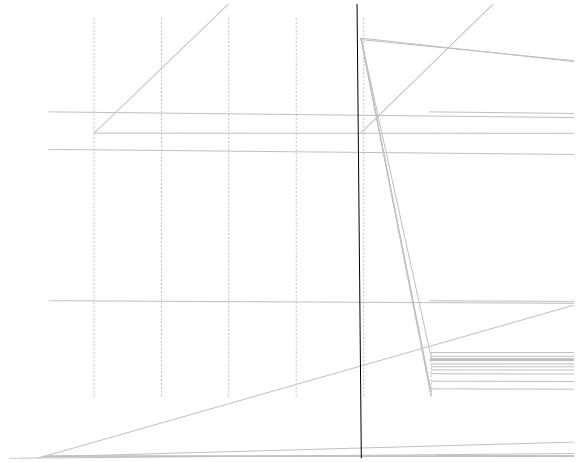


Figure 9. Drain-source on-state resistance

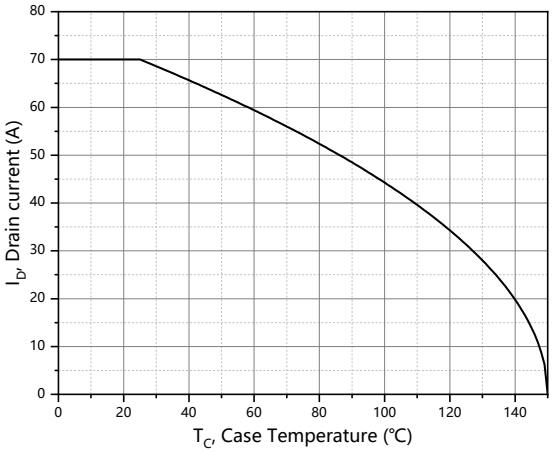


Figure 10. Drain current

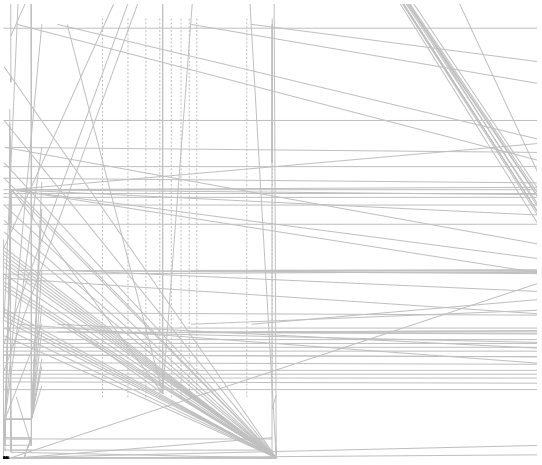


Figure 11. Safe operation area T_C=25 °C

Figure 12. Max. transient thermal impedance

Test circuits and waveforms

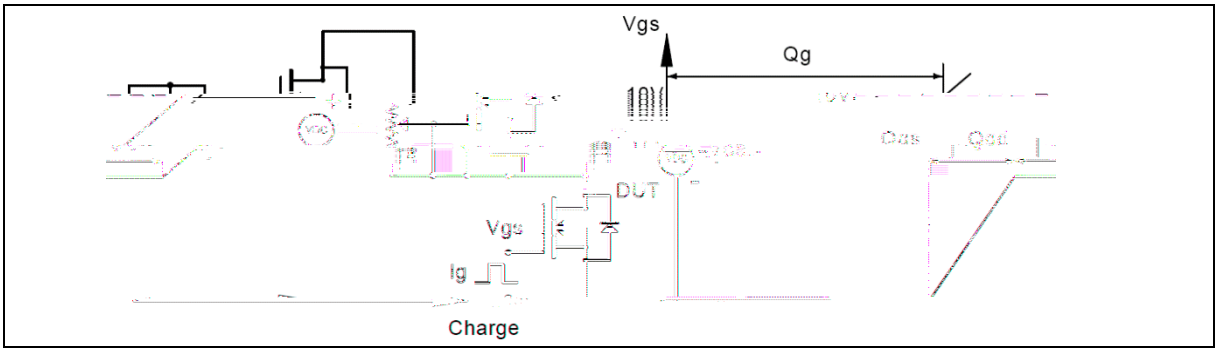


Figure 1. Gate charge test circuit & waveform

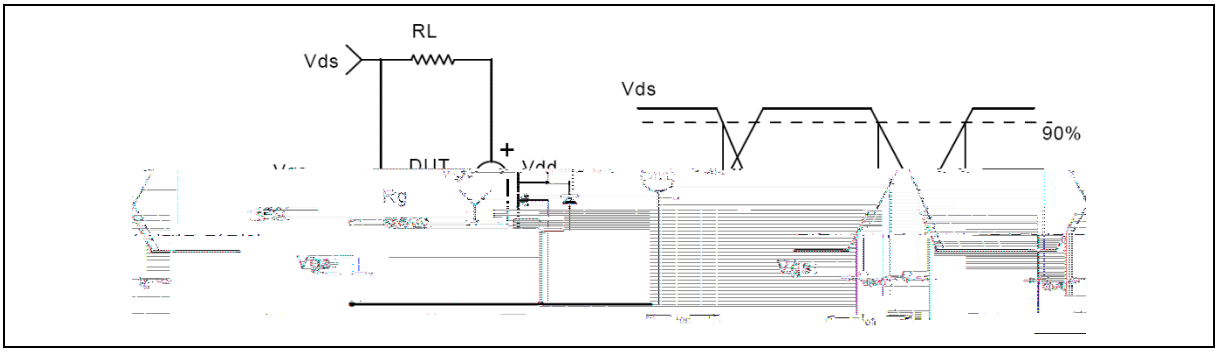


Figure 2. Switching time test circuit & waveforms

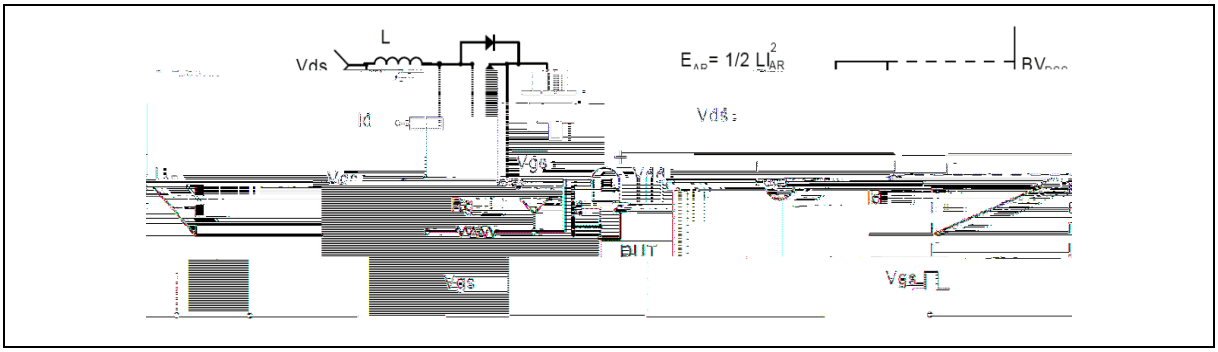


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

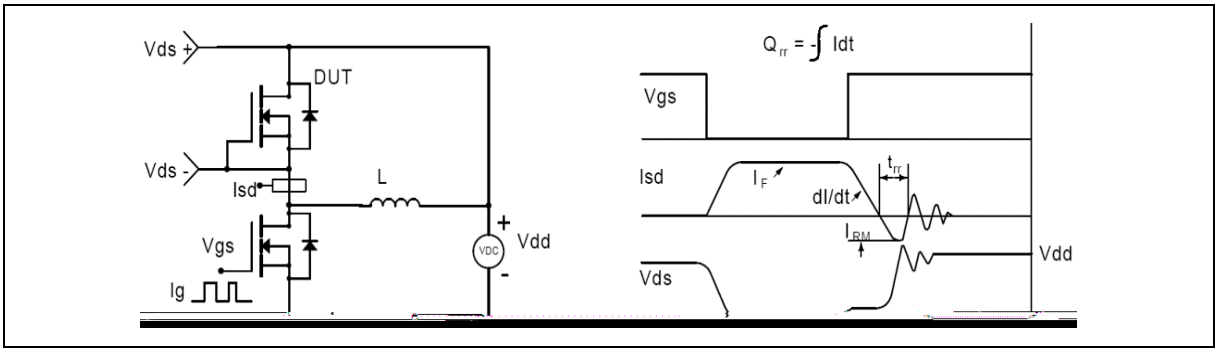
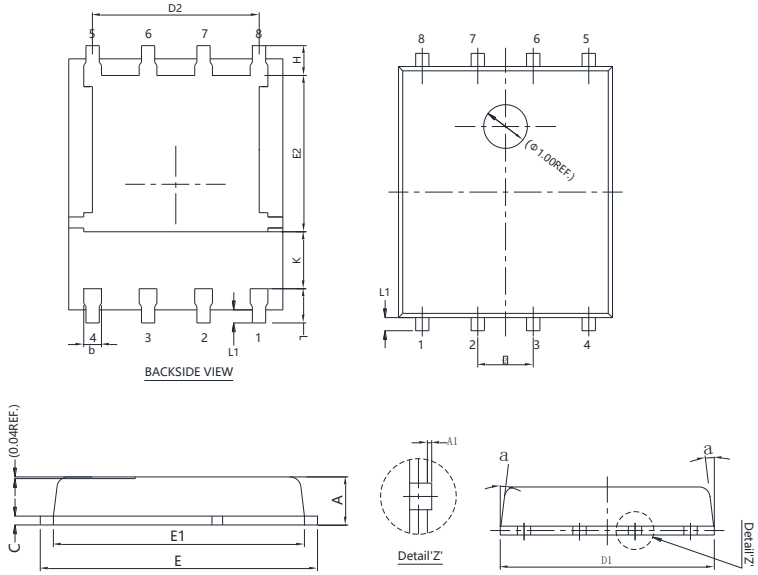


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	0.90	1.00	1.10
A1	0.00	-	0.05
b	0.33	0.41	0.51
C	0.20	0.25	0.30
D1	4.80	4.90	5.00
D2	3.61	3.81	3.96
E	6.25	6.35	6.45
E1	5.70	5.75	5.80
E2	3.38	3.58	3.78
e	1.27 BSC		
H	0.58	0.68	0.78
K	1.10	-	-
L	0.68	0.78	0.88
L1	0.25	0.3	0.4
a	0°	-	12°

Version 1: PDFN5*6-LL-M package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels / Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
PDFN5*6-LL-M	2500	2	5000	5	25000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
SFS06R06LGF	PDFN5*6-LL	yes	yes	yes

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