/ MMMI T, M K X W

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 high V_{th} series is specially designed to use in power supply systems with driving voltage of more than 10V.

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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	120	V
Gate-source voltage	V_{GS}	±20	V
Continuous drain current[1], T_C=25 °C	I_D	100	A
Pulsed drain current[2], T_C=25 °C	$I_{D,\ pulse}$	300	A
Continuous diode forward current[1], T_C=25 °C	I_S	100	A
Diode pulsed current[2], T_C=25 °C	$I_{S,\ pulse}$	300	A
Power dissipation[3], T_C=25 °C	P_D	40	W
Single pulsed avalanche energy[5]	E_{AS}	10	mJ
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	$R_{\theta JC}$	3.13	°C/W
Thermal resistance, junction-ambient[4]	$R_{\theta JA}$	62.5	°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}	120			V	V_{GS}=0 V, I_D=250 μA
Gate threshold voltage	$V_{GS(th)}$	3.0		5.0	V	V_{DS}=V_{GS}, I_D=250 μA
Drain-source on-state resistance	$R_{DS(ON)}$		6.5	8.0	mΩ	V_{GS}=10 V, I_D=20 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}=120 V, V_{GS}=0 V
Gate resistance	R_G		3		Ω	f=1 MHz, Open drain

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		5425		pF	V_{GS}=0 V, V_{DS}=25 V, f=100 kHz
Output capacitance	C_{oss}		1701		pF	

Electrical Characteristics Diagrams

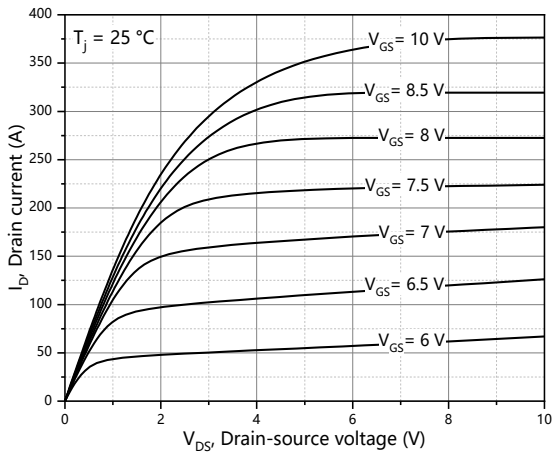

Figure 1. Typ. output characteristics

Figure 2. Typ. transfer characteristics

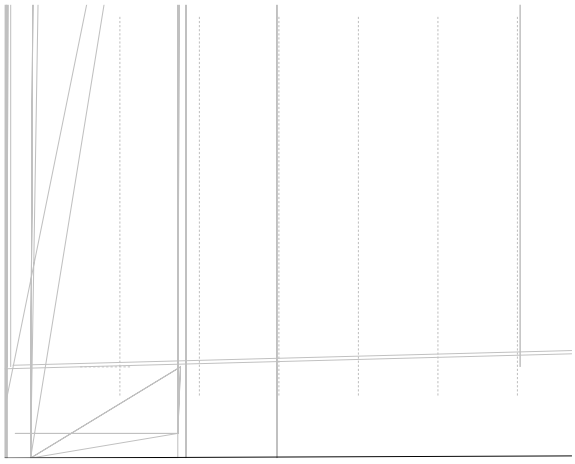

Figure 3. Typ. capacitances

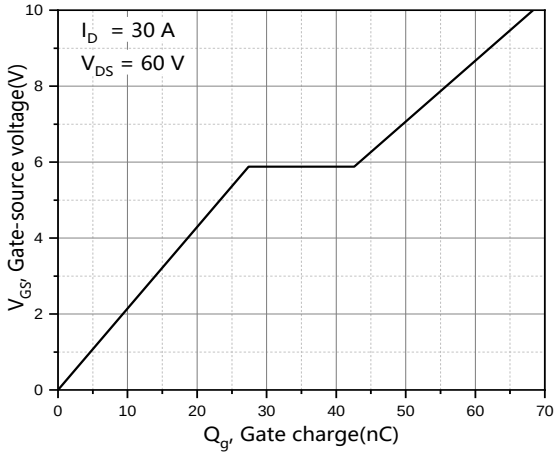

Figure 4. Typ. gate charge

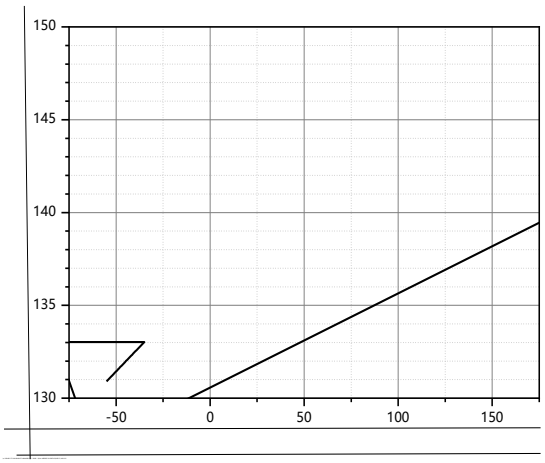

Figure 5. Drain-source breakdown voltage

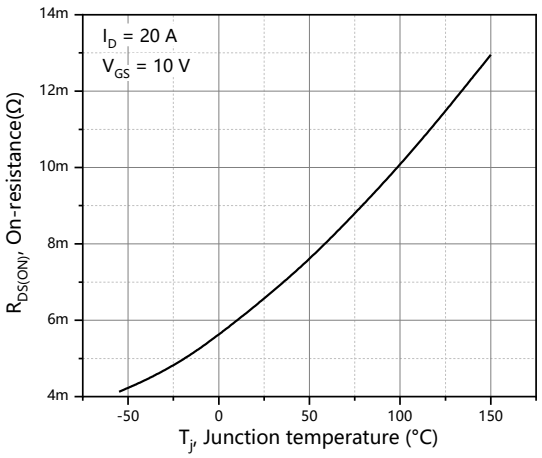

Figure 6. Drain-source on-state resistance

Figure 7. Threshold voltage

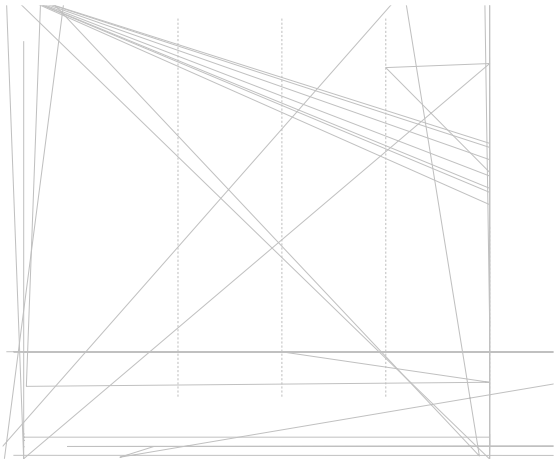

Figure 8. Forward characteristic of body diode

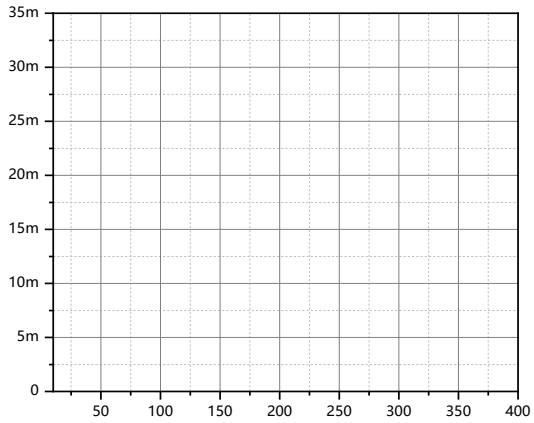

Figure 9. Drain-source on-state resistance

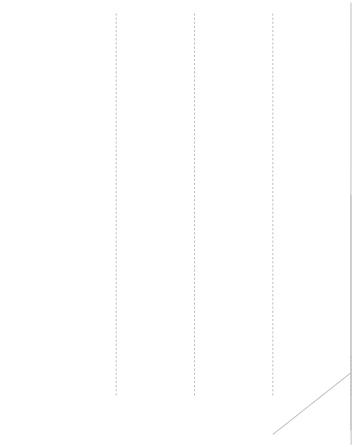

Figure 10. Drain current

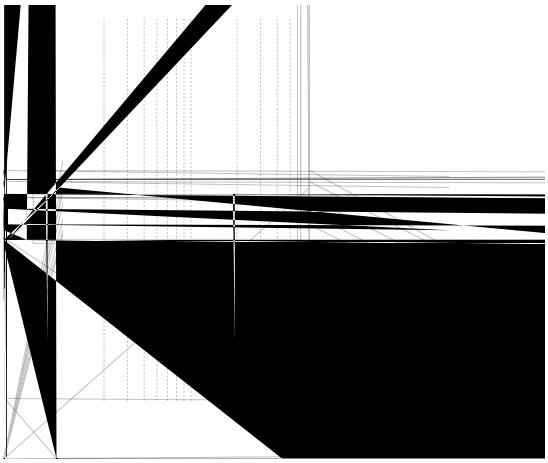

Figure 11. Safe operation area T_C=25

Figure 12. Max. transient thermal impedance

Package Information

Symbol	mm		
	Min	Nom	Max
A	4.50	4.70	4.83
A1	2.34	2.54	2.74

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220F-J	50	20	1000	5	5000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
SFS12R08FNF	TO220F	yes	yes	yes

4MCI T, KT UM

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