The GreenMOS® high voltage MOSFET utilizes charge balance technology to achieve outstanding low on-resistance and lower gate charge. It is engineered to minimize conduction loss, provide superior switching performance and robust avalanche capability.

The GreenMOS® Generic series is optimized for extreme switching performance to minimize switching loss. It is tailored for high power density applications to meet the highest efficiency standards.

GreenMOS®

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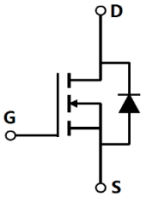
Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	750	V
$I_{D,\ pulse}$	30	A
$R_{DS(ON)\ ,\ max}$ @ V_{GS}=10V	500	m
Q_g	12.3	nC

Product Name	Package	Marking
OSG70R500FF	TO220F	OSG70R500F



Absolute Maximum Ratings at T_j=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	700	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	10	A
Continuous drain current[1], T_C=100 °C		6.3	
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	30	A
Continuous diode forward current[1], T_C=25 °C	I_S	10	A
Diode pulsed current[2], T_C=25 °C	$I_{S, pulse}$	30	67.69.5

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		715.2		pF	V_{GS}=0 V, V_{DS}=50 V, Hz
Output capacitance	C_{oss}		50.5		pF	
Reverse transfer capacitance	C_{rss}		2.27		pF	
Turn-on delay time	$t_{d(on)}$		24.7		ns	V_{GS}=10 V, V_{DS}=400 V, R_G=25 I_D=5 A
Rise time	t_r		12.8		ns	
Turn-off delay time	$t_{d(off)}$		43		ns	
Fall time	t_f		23.1		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		12.3		nC	V_{GS}=10 V, V_{DS}=400 V, I_D=5 A
Gate-source charge	Q_{gs}		3.6		nC	
Gate-drain charge	Q_{gd}		4.4		nC	
Gate plateau voltage	$V_{plateau}$		5.6		V	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	V_{SD}			1.3	V	I_S=10 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		213		ns	V_R=400 V, I_S=5 A,
Reverse recovery charge	Q_{rr}		2		C	
Peak reverse recovery current	I_{rrm}		15.8		A	

Note

1) Calculated continuous current based on maximum allowable junction temperature.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) Pd is based on max. junction temperature, using junction-case thermal resistance.
4) The value of R is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 °C.
5) V_{DD}=100 V, V_{GS}=10 V, L=10.8 mH, starting T_j=25 °C.

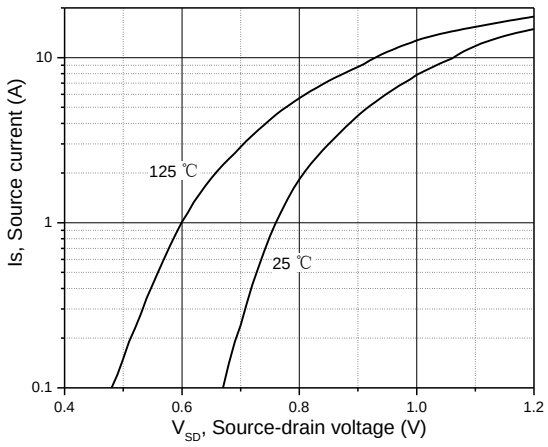


Figure 7. Forward characteristic of body diode

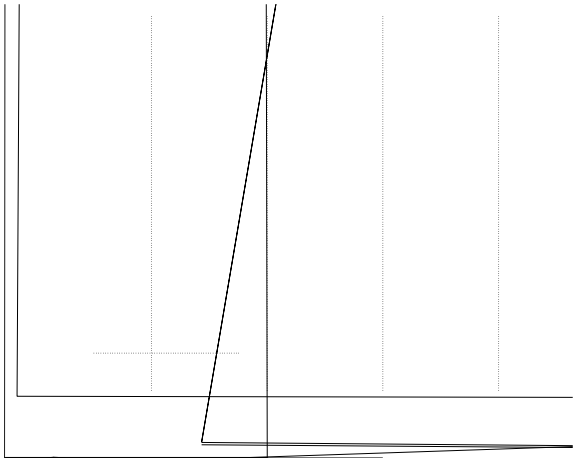


Figure 8. Drain-source on-state resistance

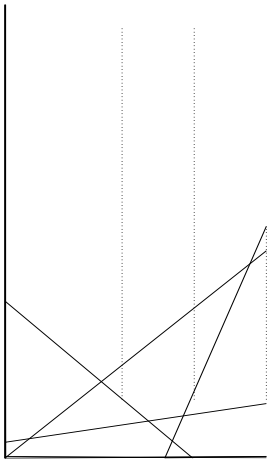


Figure 9. Drain current

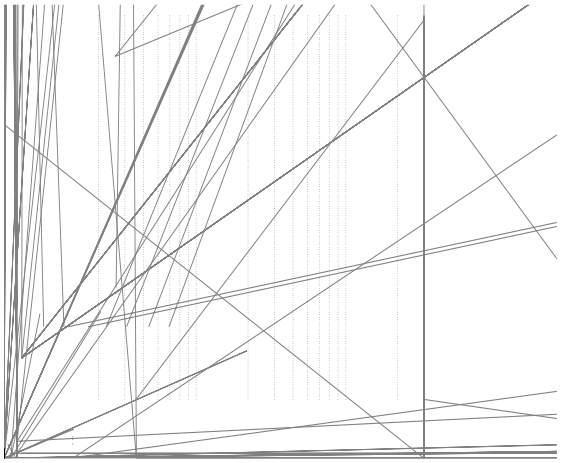


Figure 10. Safe operation area T_C=25 °C

Package Information

Symbol	mm		
	Min	Nom	Max
E	9.96	10.16	10.36
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A4	2.56	2.76	2.96
c	0.40	0.50	0.65
D	15.57	15.87	16.17
H1	6.70REF		
e	2.54BSC		
L	12.68	12.98	13.28

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220F-C	50	20	1000	6	6000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG70R500FF	TO220F	yes	yes	yes

ORIENTAL SEMICONDUCTOR