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.

GreenMOS®

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RoHS

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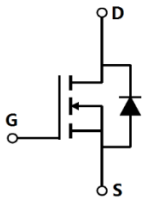
Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	650	V
$I_{D,\ pulse}$	120	A
$R_{DS(ON),\ max}$ @ V_{GS}=10V	96	
Q_g	56.6	nC

Product Name	Package	Marking
OSG60R096PSF	TO220	OSG60R096PS



Absolute Maximum Ratings at T_j=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	600	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	40	A
Continuous drain current[1], T_C=100 °C		25	
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	120	A
Continuous diode forward current[1], T_C=25 °C	I_S	40	A
Diode pulsed current[2], T_C=25 °C	$I_{S, pulse}$	120	A
Power dissipation[3], T_C=25 °C	P_D	261	W
Single pulsed avalanche energy[5]	E_{AS}	793.6	mJ
MOSFET dv/dt ruggedness, V_{DS}	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS} SD D	dv/dt	15	V/ns
Operation and storage temperature	T_{stg}, T_j	-55 to 15Q71	

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		3190.3		pF	V_{GS}=0 V, V_{DS}=50 V, 00 KHz
Output capacitance	C_{oss}		280.1		pF	
Reverse transfer capacitance	C_{rss}		1.69		pF	
Turn-on delay time	$t_{d(on)}$		36.8		ns	V_{GS}=10 V, V_{DS}=400 V, R_G I_D=20 A
Rise time	t_r		34.7		ns	
Turn-off delay time	$t_{d(off)}$		104.7		ns	
Fall time	t_f		7.7		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		56.6		nC	V_{GS}=10 V, V_{DS}=400 V, I_D=20 A
Gate-source charge	Q_{gs}		16.2		nC	
Gate-drain charge	Q_{gd}		16.6		nC	
Gate plateau voltage	$V_{plateau}$		5.5		V	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	V_{SD}			1.4	V	I_S=40 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		506.0		ns	, I_S=20 A, di/dt=10
Reverse recovery charge	Q_{rr}		4.2		C	
Peak reverse recovery current	I_{rrm}		27.7		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=60 mH, starting T_j=25 °C.

Electrical Characteristics Diagrams

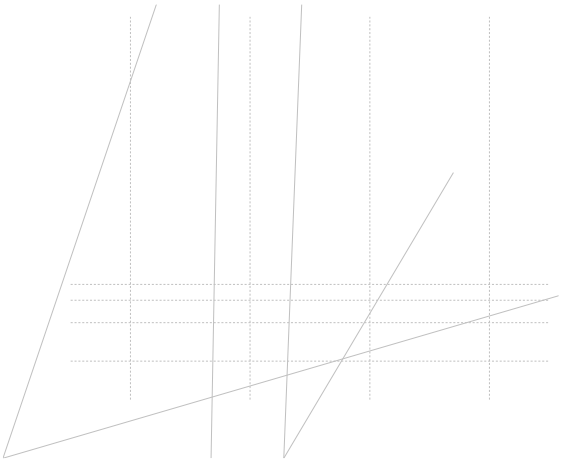


Figure 2. Typ. transfer characteristics

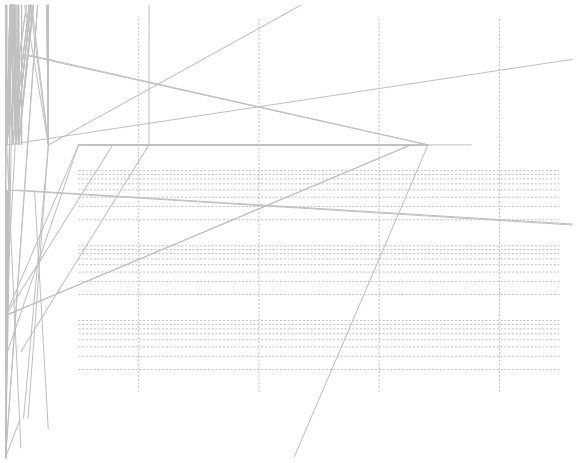


Figure 3. Typ. capacitances

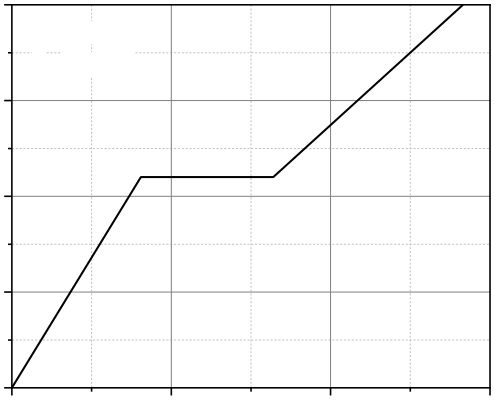


Figure 4. Typ. gate charge

Figure 6. Drain-source on-state resistance

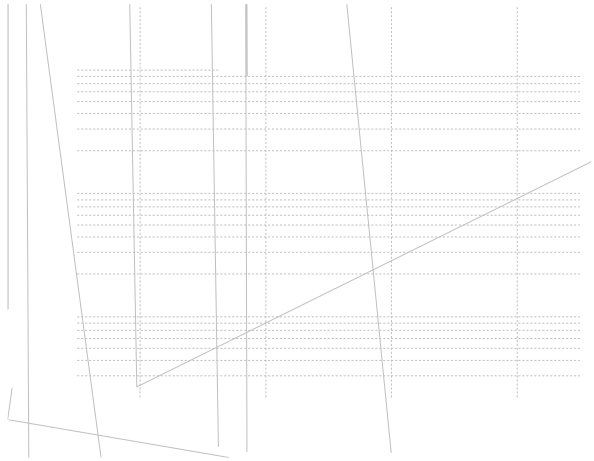


Figure 7. Forward characteristic of body diode

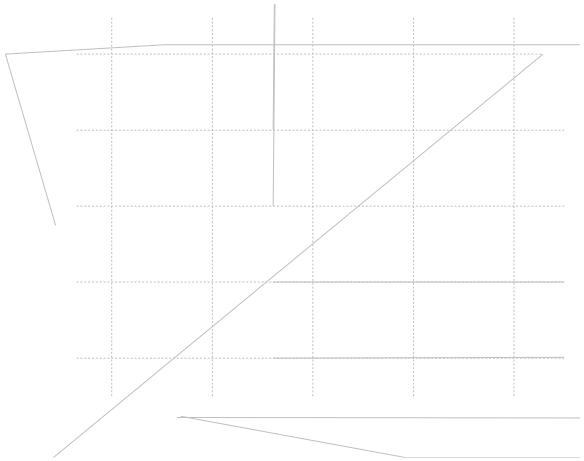


Figure 8. Drain-source on-state resistance

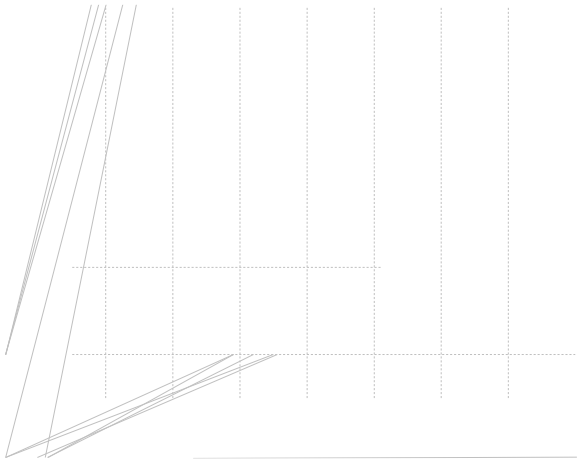


Figure 9. Drain current

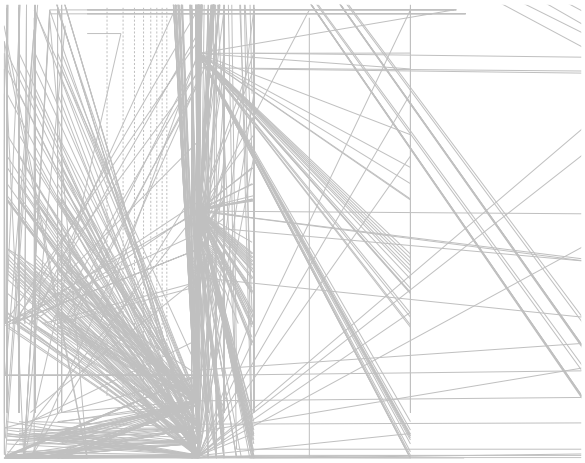


Figure 10. Safe operation area T_C=25 °C

Test circuits and waveforms

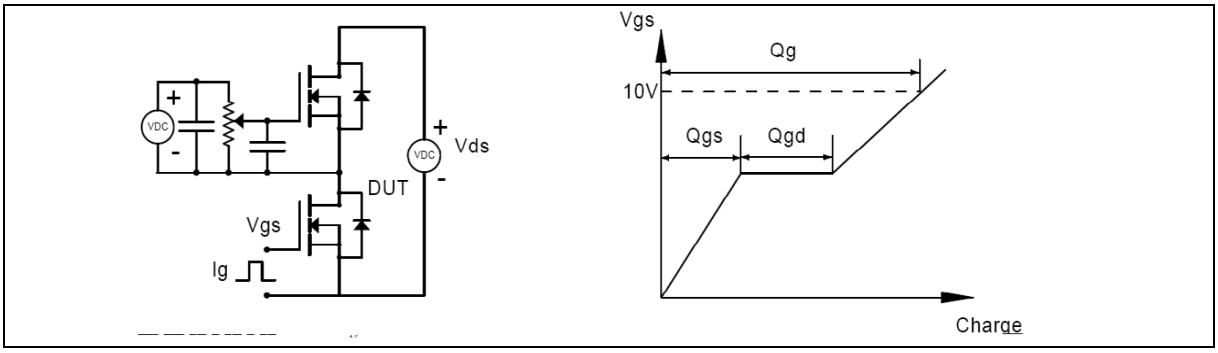


Figure 1. Gate charge test circuit & waveform

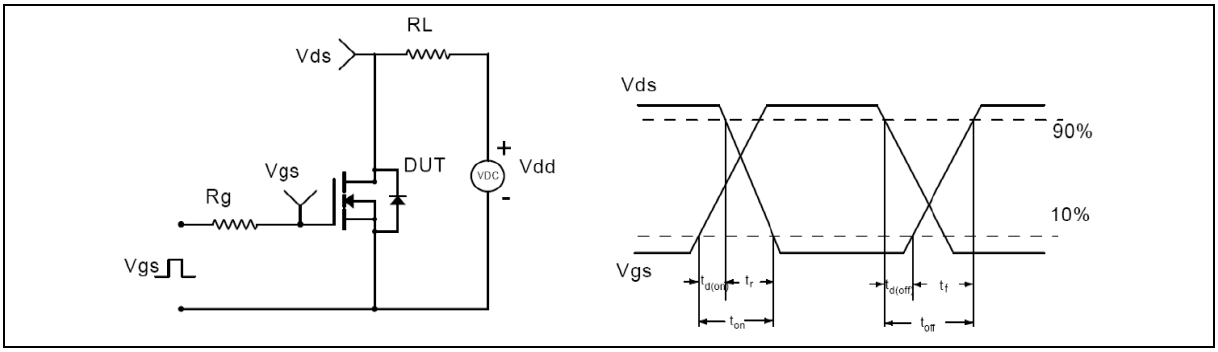


Figure 2. Switching time test circuit & waveforms

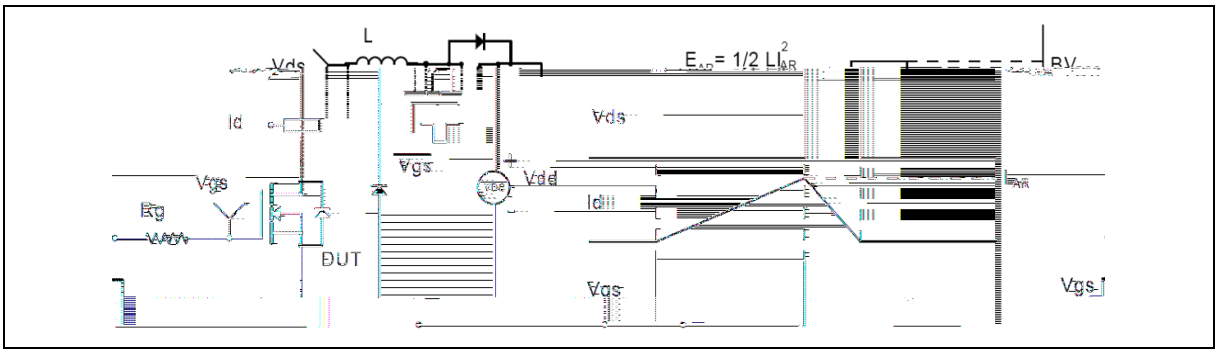


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

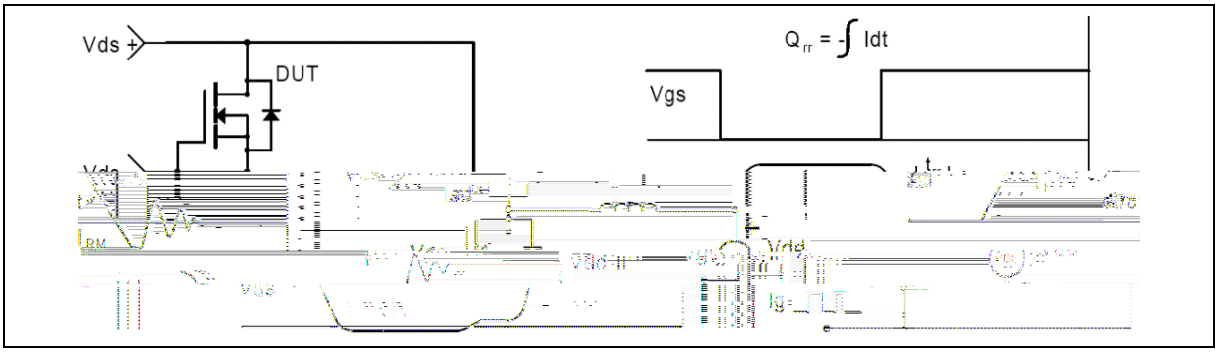


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information

Symbol	mm

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220-P	50	20	1000	6	6000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG60R096PSF	TO220	yes	yes	yes

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