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.

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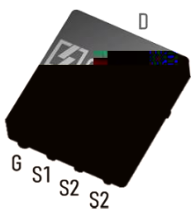
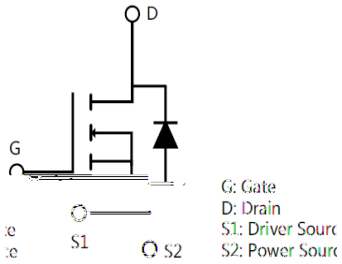
Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	850	V
$I_{D,\ pulse}$	45	A
$R_{DS(ON)\ ,\ max}$ @ V_{GS}=10V	300	
Q_g	23.3	nC

Product Name	Package	Marking
OSG80R300JF	PDFN 8×8	OSG80R300J





Absolute Maximum Ratings at T_j=25 ， unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	800	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	15	A
Continuous drain current[1], T_C=100 °C		9.5	
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	45	A
Continuous diode forward current[1], T_C=25 °C	I_S	15	A
Diode pulsed current[2], T_C=25 °C	$I_{S, pulse}$	45	A
Power dissipation[3], T_C=25 °C	P_D	151	W
Single pulsed avalanche energy[5]	E_{AS}	360	mJ
MOSFET dv/dt ruggedness, V_{DS}& 480 V	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS}& 480 V, I_{SD} 2	dv/dt	15	V/ns
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R 3,	0.83	°C/W
Thermal resistance, junction-ambient[4]	R 3	62	°C/W

Electrical Characteristics at T_j=25 ， unless otherwise specified

Parameter **Symbol** **Min.**

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}				pF	V_{GS}=0 V, V_{DS}=50 V, & Hz
Output capacitance	C_{oss}		80.1		pF	
Reverse transfer capacitance	C_{rss}		2.1		pF	
Turn-on delay time	$t_{d(on)}$		33.6		ns	V_{GS}=10 V, V_{DS}=400 V, R_G& I_D=7.5 A
Rise time	t_r		20.3		ns	
Turn-off delay time	$t_{d(off)}$		57.9		ns	
Fall time	t_f		4.5		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		22.7		nC	V_{GS}=10 V, V_{DS}=400 V, I_D=7.5 A
Gate-source charge	Q_{gs}		8.6		nC	
Gate-drain charge	Q_{gd}		2.3		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}			1.3	V	I_S=15 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		313.7		ns	, I_S=7.5 A, &
Reverse recovery charge	Q_{rr}		4.2		C	
Peak reverse recovery current	I_{rrm}		25.2		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 $_3$ 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=80 mH, starting T_j=25 °C.

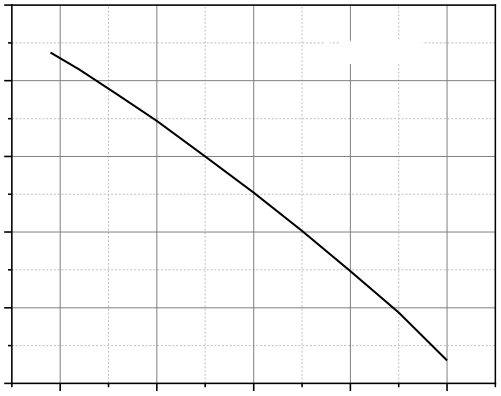


Figure 7. Threshold voltage

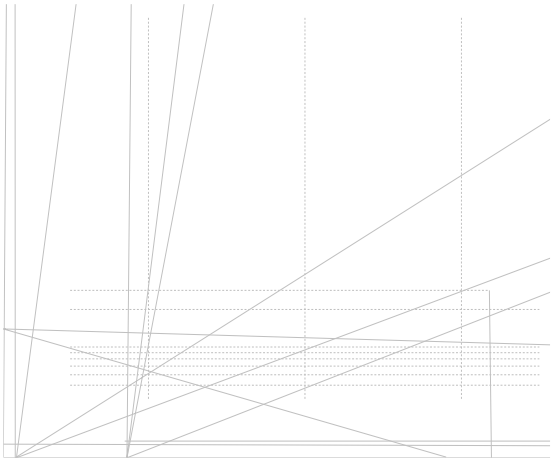


Figure 8. Forward characteristic of body diode

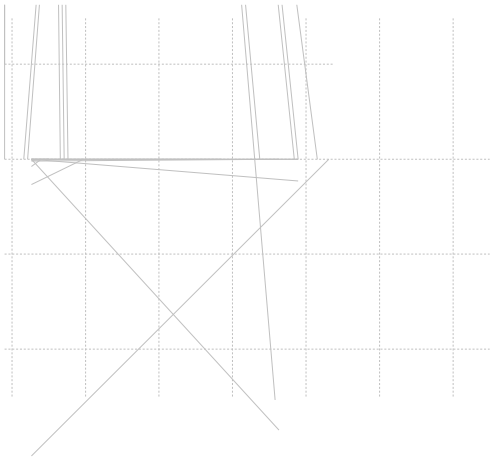


Figure 9. Drain-source on-state resistance

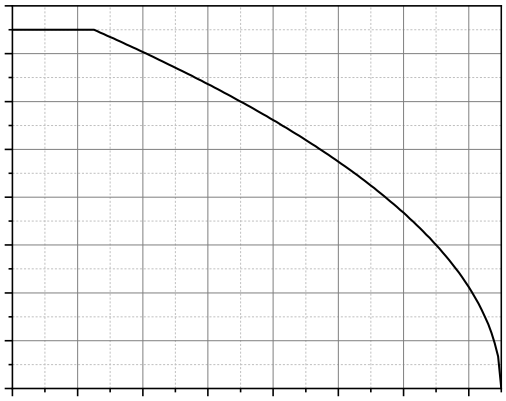


Figure 10. Drain current

Figure 11. Safe operation area T_C=25 °C

Figure 12. Max. transient thermal impedance

Test circuits and waveforms

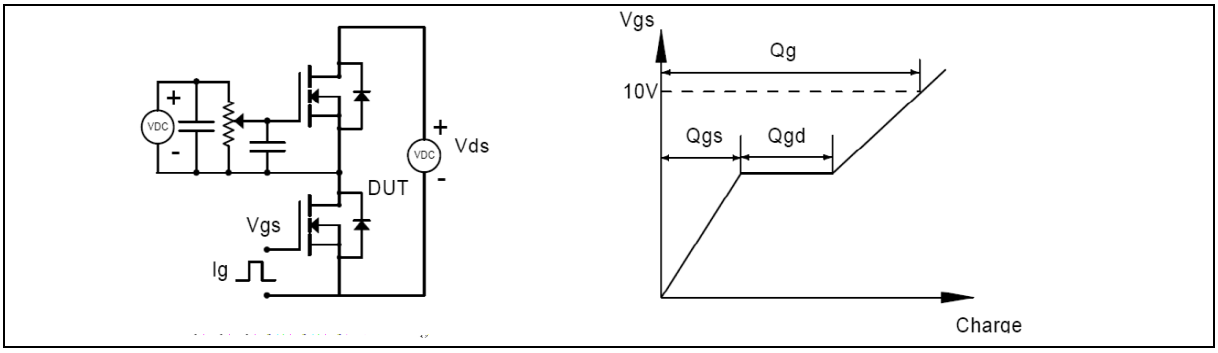


Figure 1. Gate charge test circuit & waveform

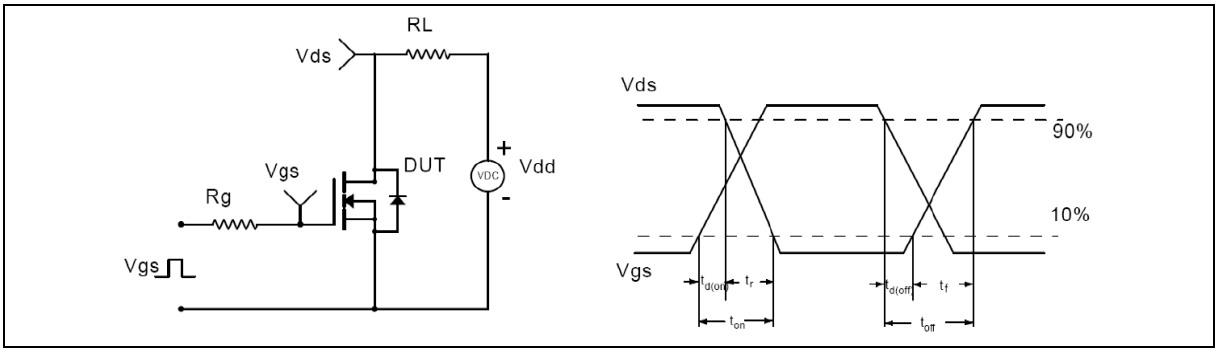


Figure 2. Switching time test circuit & waveforms

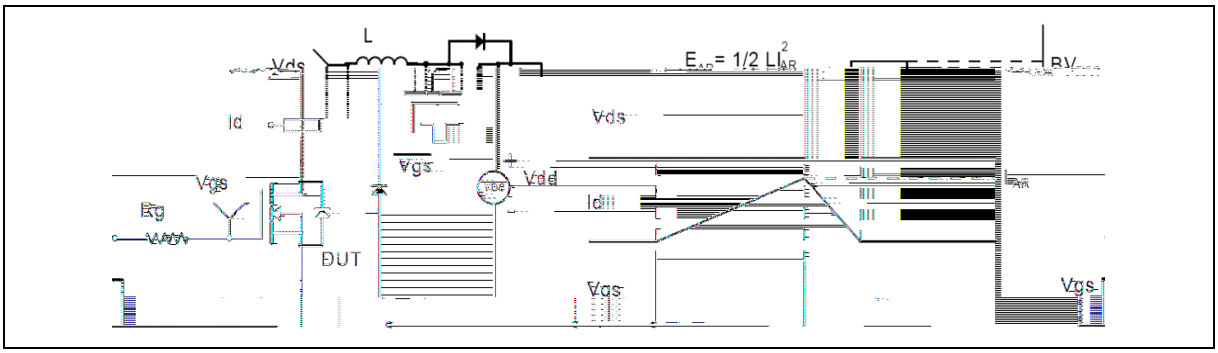


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

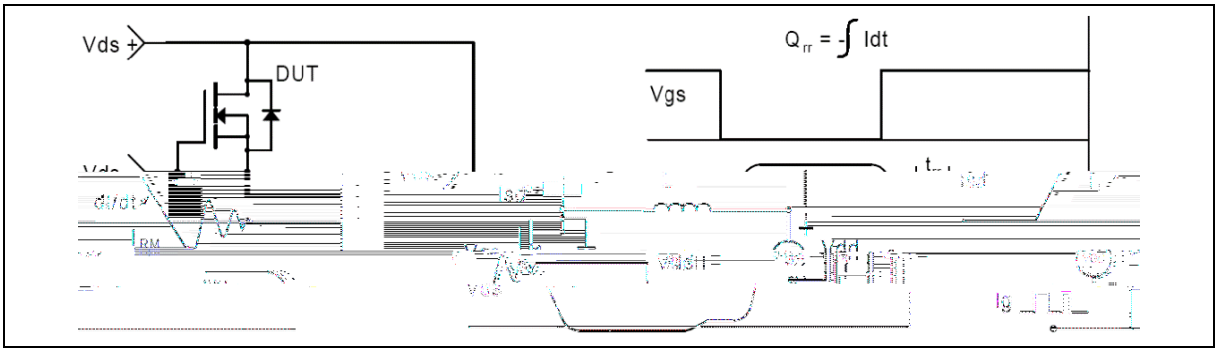
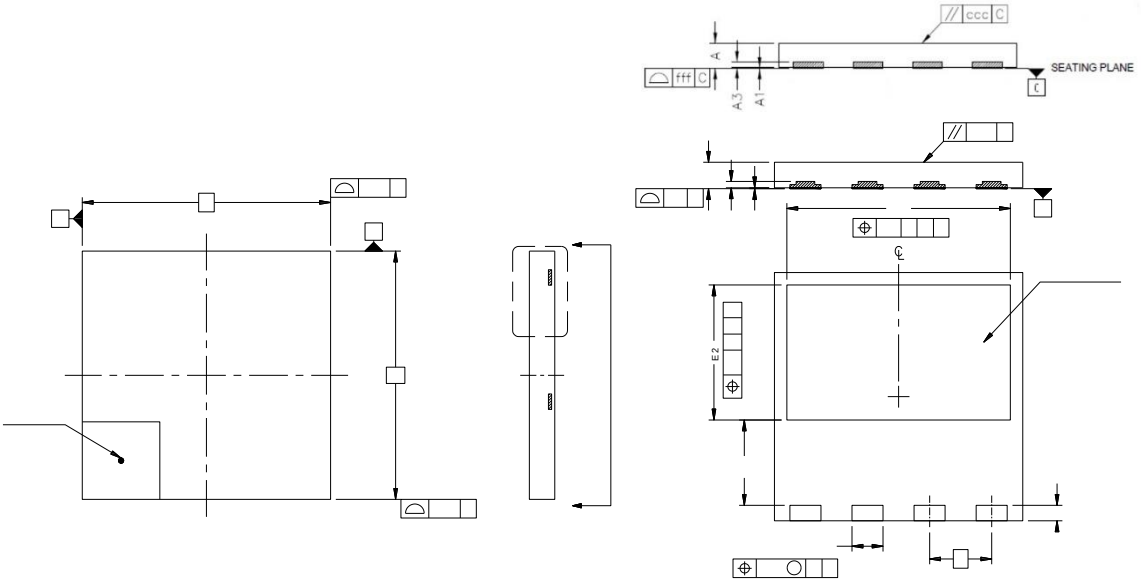


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm	
	Min	Max
A	0.75	0.95
A1	0.00	0.05
A3	0.10	0.30
b	0.90	1.10
D	7.90	8.10
E	7.90	8.10
D2	7.10	7.30
E1	2.65	2.85
E2	4.25	4.45
e	2.0 BSC	
L	0.40	0.60
aaa	0.1	
ggg	0.05	
ccc	0.05	
fff	0.05	

Version 1: PDFN 8×8-S package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
PDFN 8×8-S	3000	1	3000	10	30000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG80R300JF	PDFN 8×8	yes	yes	yes

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