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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Absolute Maximum Ratings at T_j=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	650	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	8	A
Continuous drain current[1], T_C=100 °C		5	
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	24	A
Continuous diode forward current[1], T_C=25 °C	I_S	8	A
Diode pulsed current[2], T_C=25 °C	$I_{S, pulse}$	24	A

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		464		pF	V_{GS}=0 V, V_{DS}=50 V, Hz
Output capacitance	C_{oss}		38.3		pF	
Reverse transfer capacitance	C_{rss}		1.47		pF	
Turn-on delay time	$t_{d(on)}$		18		ns	V_{GS}=10 V, V_{DS}=380 V, R_G=25 I_D=8 A
Rise time	t_r		18		ns	
Turn-off delay time	$t_{d(off)}$		27		ns	
Fall time	t_f		22		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		9.5		nC	V_{GS}=10 V, V_{DS}=480 V, I_D=8 A
Gate-source charge	Q_{gs}		2.7		nC	
Gate-drain charge	Q_{gd}		3.8		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=8 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		211		ns	V_R=400 V, I_S=8 A,
Reverse recovery charge	Q_{rr}		1.8		C	
Peak reverse recovery current	I_{rrm}		10.5		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}=50 V, V_{GS}=10 V, L=10.8 mH, starting T_j=25 °C.

Electrical Characteristics Diagrams

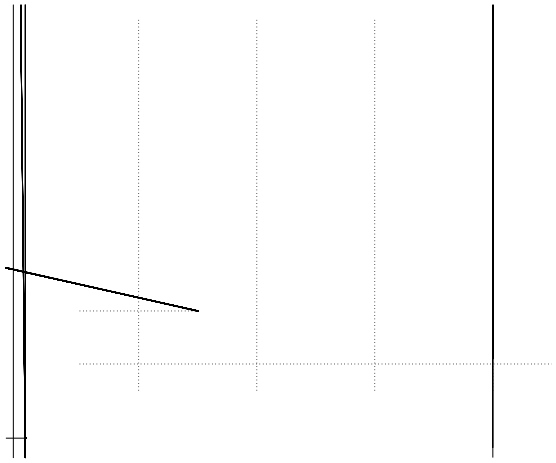

Figure 1. Typ. output characteristics

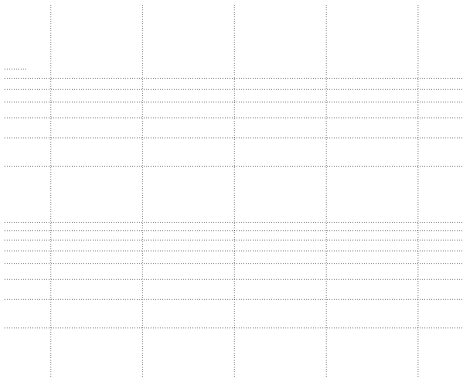

Figure 2. Typ. transfer characteristics

Figure 3. Typ. capacitances

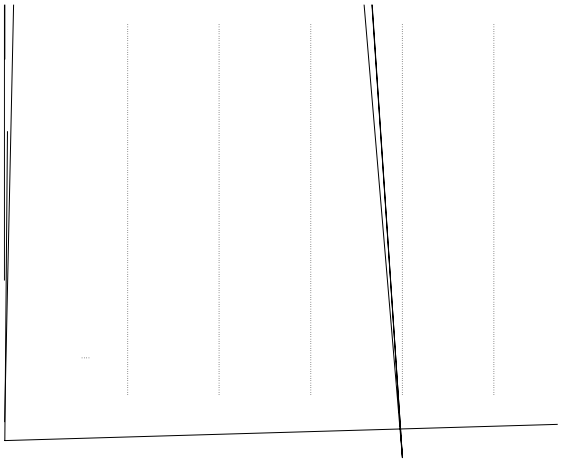

Figure 4. Typ. gate charge

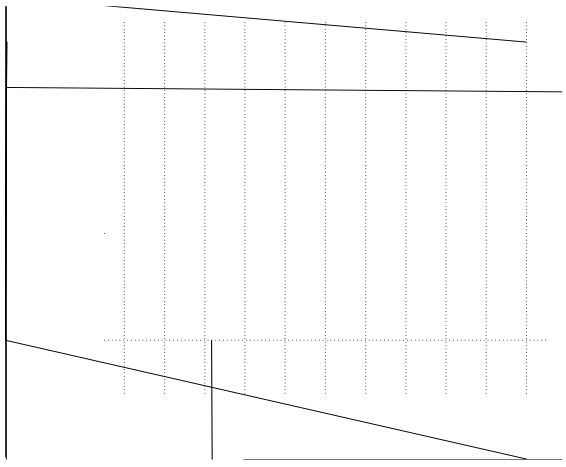

Figure 5. Drain-source breakdown voltage

Figure 6. Drain-source on-state resistance

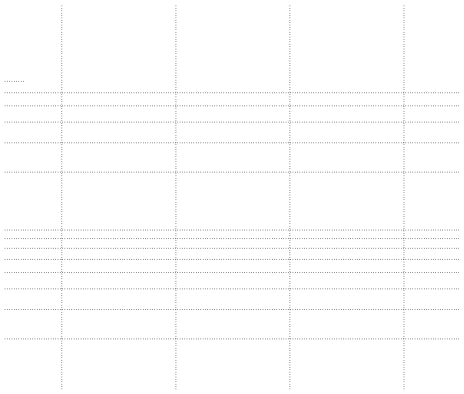

Figure 7. Forward characteristic of body diode

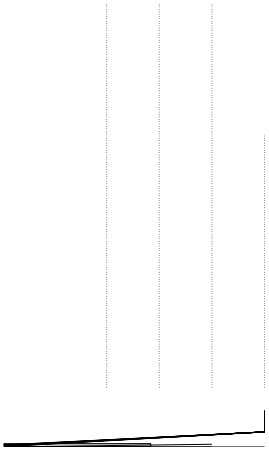

Figure 8. Drain-source on-state resistance

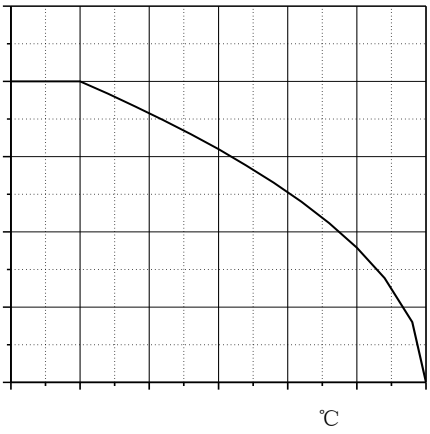

Figure 9. Drain current

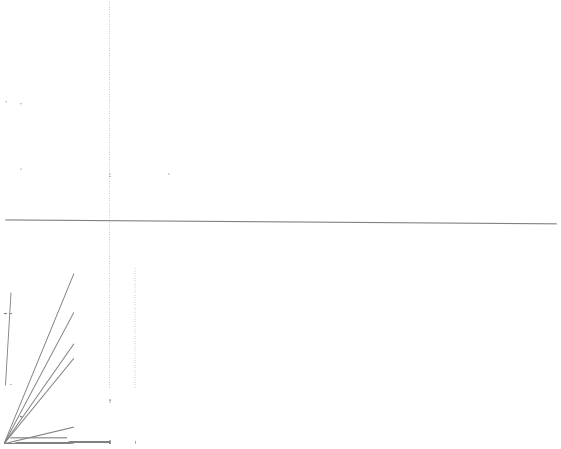

Figure 10. Safe operation area T_C=25 °C

Test circuits and waveforms

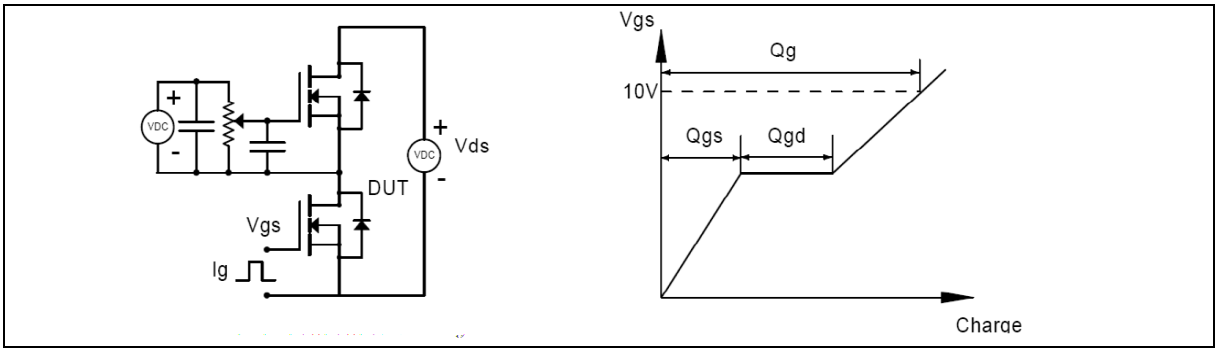

Figure 1. Gate charge test circuit & waveform

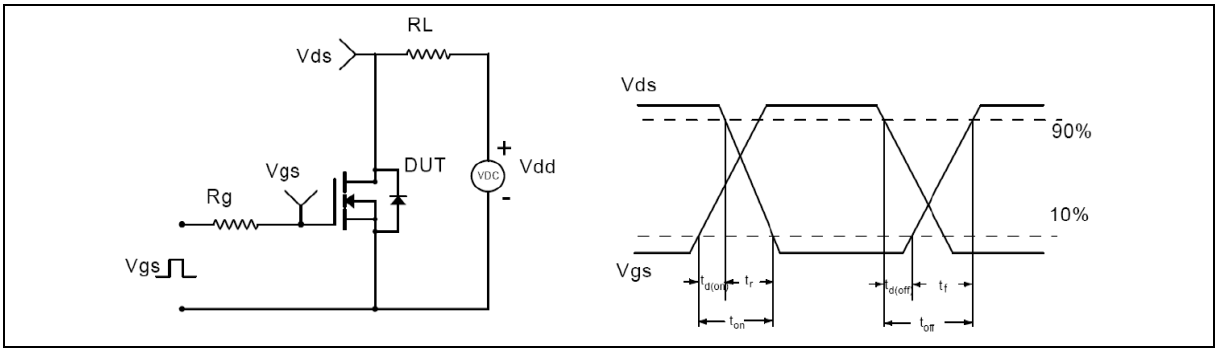

Figure 2. Switching time test circuit & waveforms

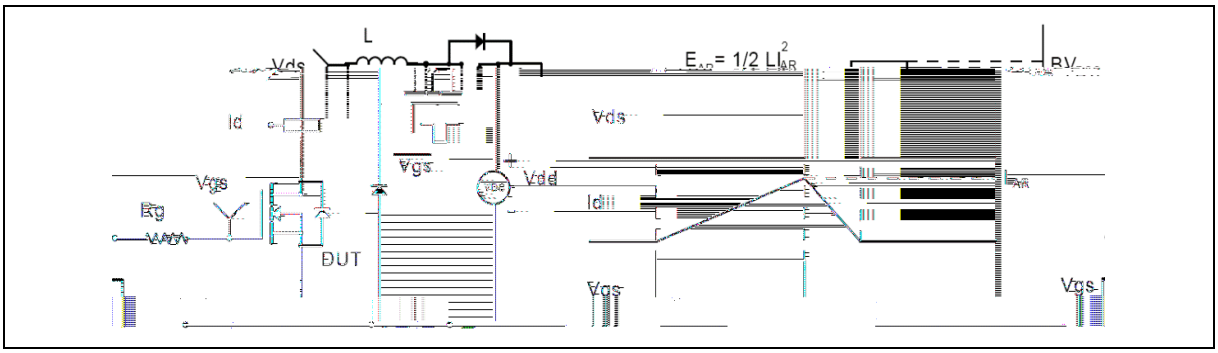

Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

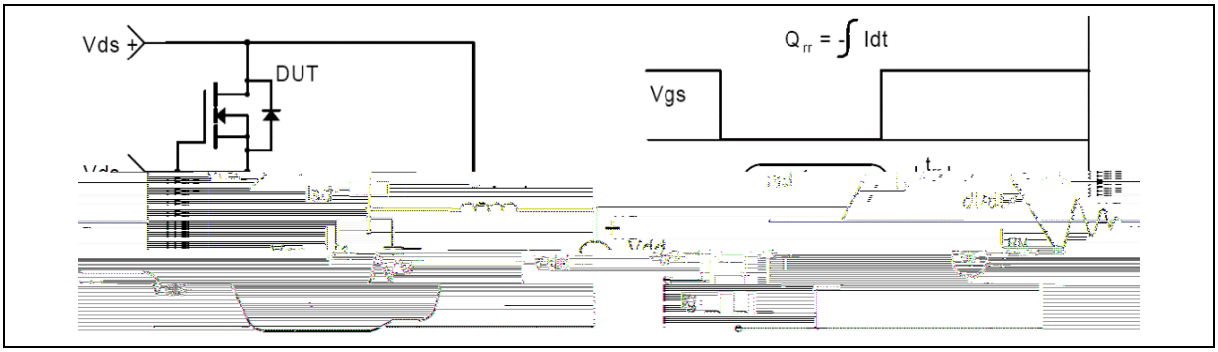

Figure 4. Diode reverse recovery test circuit & waveforms

Package Information

Symbol	mm		
	Min	Nom	Max
A	4.37	4.57	4.77
A1	1.22	1.27	1.42
A2	2.49	2.69	2.89
A3	0.00	0.13	0.25
b	0.70	0.81	0.96
b1	1.17	1.27	1.47
c	0.30	0.38	0.53
D1	8.50	8.70	8.90
D4	6.60	-	-
E	9.86	10.16	10.36
E5	7.06	-	-
e	2.54BSC		
H	14.70		

Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO263-C	800	1	800	5	4000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG65R580KF	TO263	yes	yes	yes

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