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®

RoHS compliant

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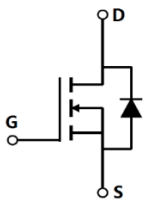
Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	750	V
$I_{D,\ pulse}$	6	A
$R_{DS(ON)\ ,\ max}$ @ V_{GS}=10V	2.6	
Q_g	7.9	nC

Product Name	Package	Marking
OSG70R2K6PF	TO220	OSG70R2K6P



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	2	A
Continuous drain current[1], T_C=100 °C		1.3	
Pulsed drain current[2], T_C=25 °C	$I_{D,\ pulse}$	6	A
Continuous diode forward current[1], T_C=25 °C	I_S	2	A
Diode pulsed current[2], T_C=25 °C	$I_{S,\ pulse}$	6	A
Power dissipation[3], T_C=25 °C	P_D	22.3	W
Single pulsed avalanche energy[5]	E_{AS}	70	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 150	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R	5.6	°C/W
Thermal resistance, junction-ambient[4]	R	62	°C/W

Electrical Characteristics at T_j=25 unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	700			V	V_{GS}=0 V, I_D=250 A
		750	810			V_{GS}=0 V, I_D , T_j=150 °C
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	V_{DS}=V_{GS}, I_D=250 A
Drain-source on-state resistance	$R_{DS(ON)}$		2.3	2.6		V_{GS}=10 V, I_D=1 A
			5.3			V_{GS}=10 V, I_D=1 A, T_j=150 °C
Gate-source leakage current	I_{GSS}			100	nA	V_{GS}=30 V
				-100		V_{GS}=-30 V
Drain-source leakage current	I_{DSS}			1	A	V_{DS}=700 V, V_{GS}=0 V

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		182		pF	V_{GS}=0 V, V_{DS}=50 V, Hz
Output capacitance	C_{oss}		12.08		pF	
Reverse transfer capacitance	C_{rss}		0.75		pF	
Turn-on delay time	$t_{d(on)}$		20.5		ns	V_{GS}=10 V, V_{DS}=350 V, R_G=25 I_D=1 A
Rise time	t_r		11.2		ns	
Turn-off delay time	$t_{d(off)}$		49.6		ns	
Fall time	t_f		40.4		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		7.9		nC	V_{GS}=10 V, V_{DS}=560 V, I_D=2 A
Gate-source charge	Q_{gs}		1.3		nC	
Gate-drain charge	Q_{gd}		4.1		nC	
Gate plateau voltage	$V_{plateau}$		5.4		V	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	V_{SD}			1.3	V	I_S=2 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		143		ns	V_R=350 V, I_S=2 A,
Reverse recovery charge	Q_{rr}		0.222		C	

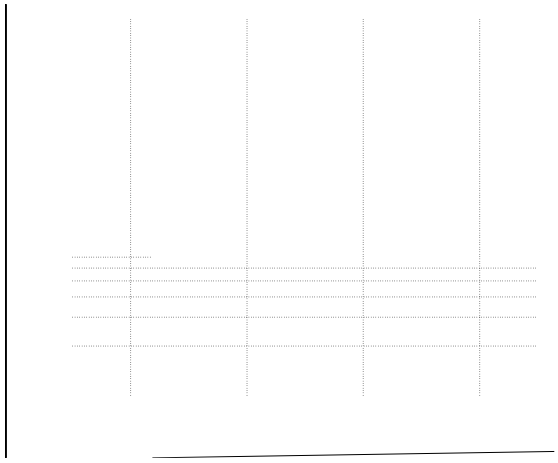


Figure 7. Forward characteristic of body diode

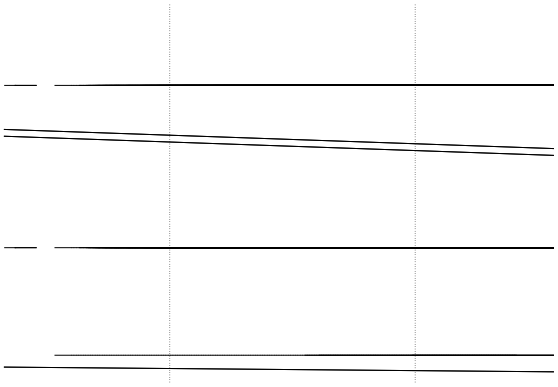


Figure 8. Drain-source on-state resistance

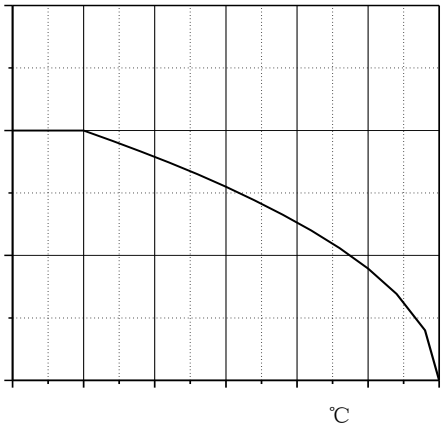


Figure 9. Drain current

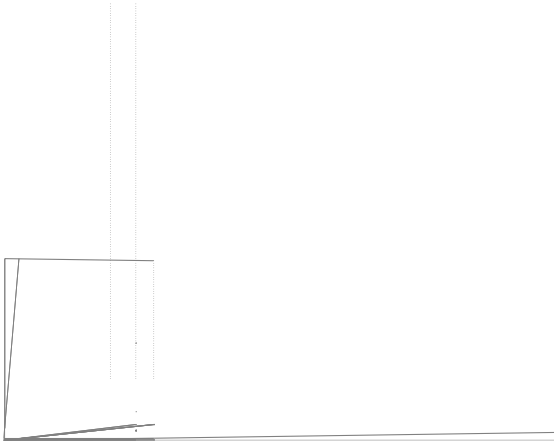


Figure 10. Safe operation area T_C=25 °C

Test circuits and waveforms

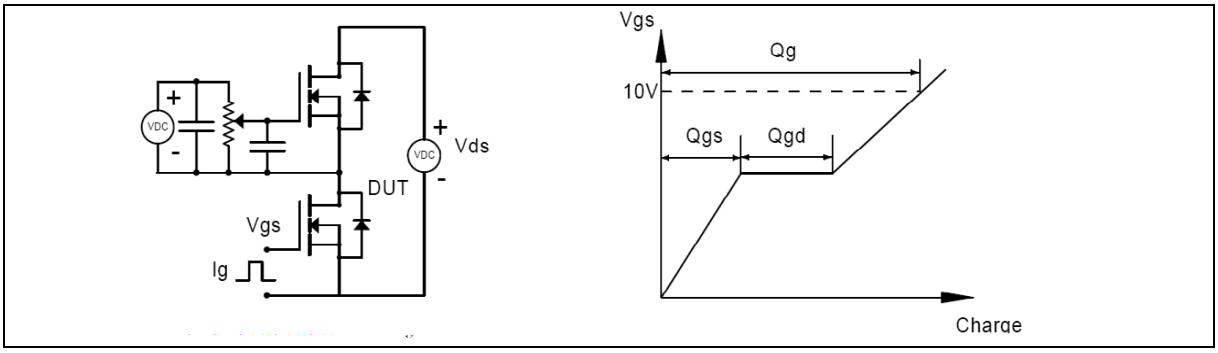


Figure 1. Gate charge test circuit & waveform

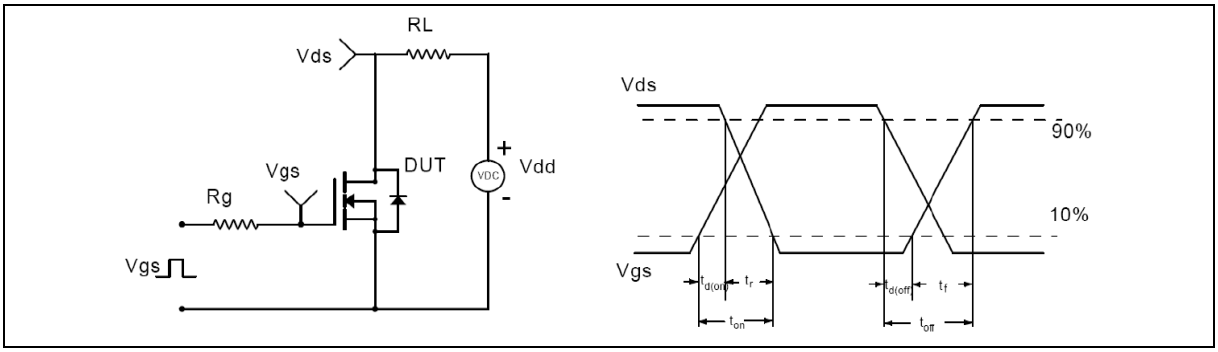


Figure 2. Switching time test circuit & waveforms

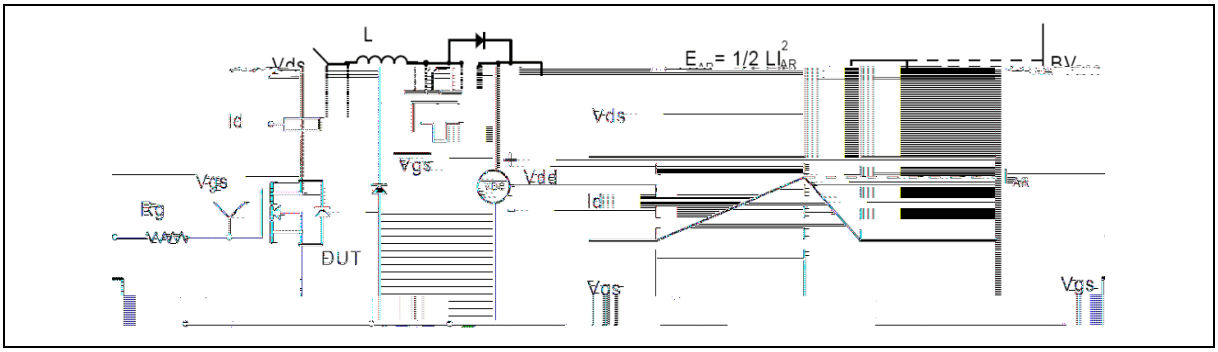


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

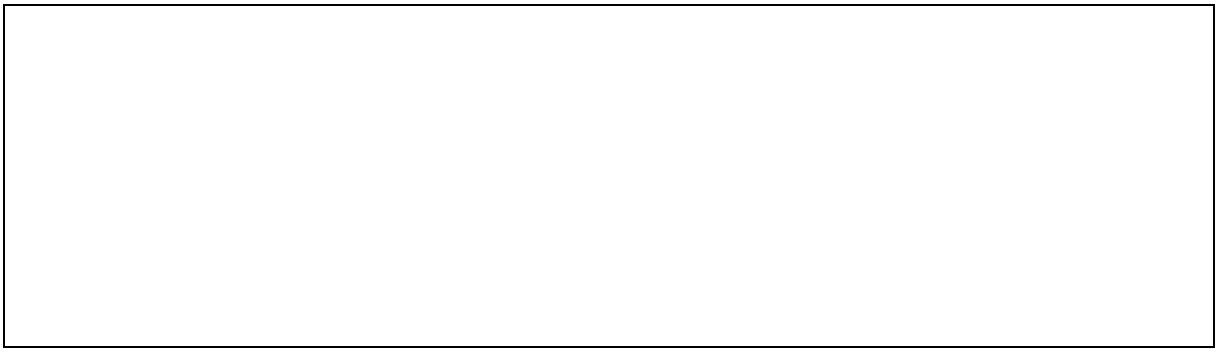
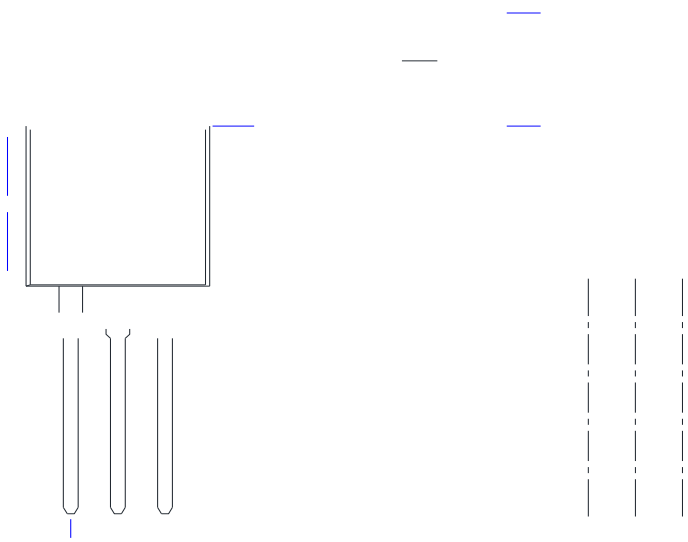


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.40	4.50	4.60
A1	1.27	1.30	1.33
A2	2.30	2.40	2.50
b	0.70	-	0.90
b1	1.27	-	1.40
c	0.45	0.50	0.60
D	15.30	15.70	16.10
D1	9.10	9.20	9.30
D2	13.10	-	13.70
E	9.70	9.90	10.20
E1	7.80	8.00	8.20
e	2.54BSC		
e1	5.08BSC		
H1	6.30	6.50	6.70
L	12.78	13.08	13.38
L1	-	-	3.50
L2	4.60REF		
	3.55	3.60	3.65
Q	2.73	-	2.87
1	1		

Version 1: TO220-J package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220-J	50	20	1000	5	5000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG70R2K6PF	TO220	yes	yes	yes