

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.

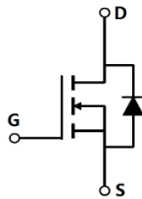
GreenMOS[®]



-
-
-
-
-
-
-
-
-

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
OSG70R2K6AF	TO251	OSG70R2K6A



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}	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

OSG70R2K6AF 
Enhancement Mode N-Channel Power MOSFET

Electrical Characteristics Diagrams

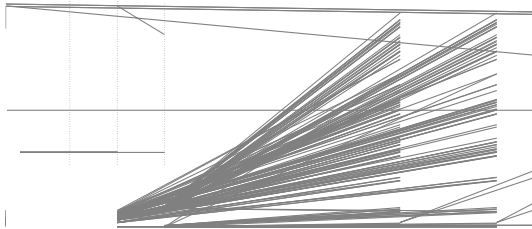


Figure 1. Typ. output characteristics

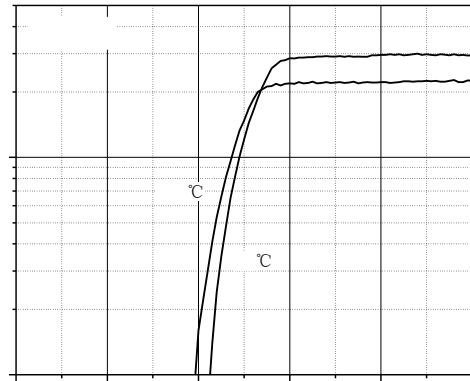


Figure 2. Typ. transfer characteristics



Figure 3. Typ. capacitances

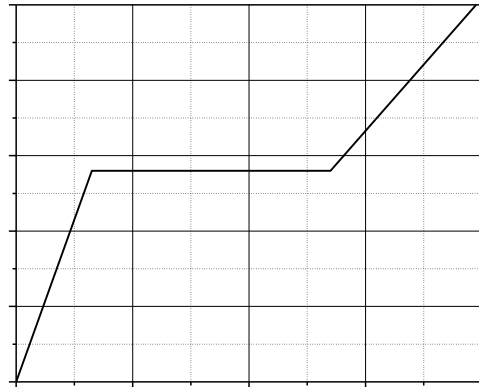


Figure 4. Typ. gate charge

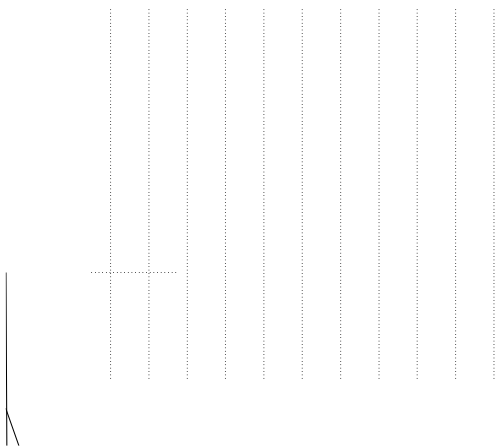


Figure 5. Drain-source breakdown voltage



Figure 6. Drain-source on-state resistance

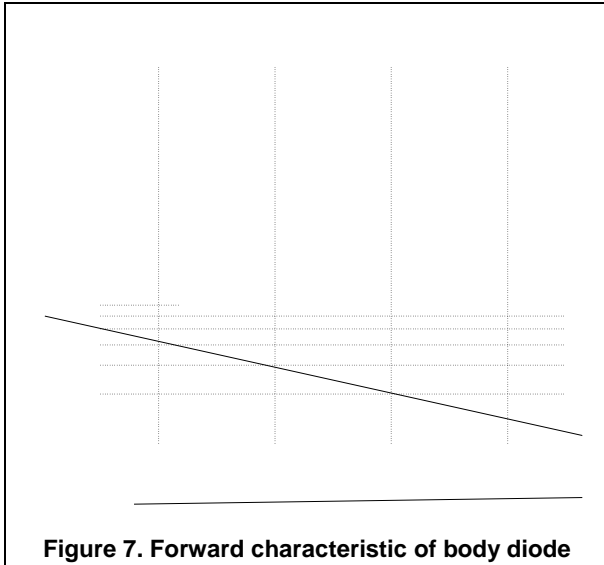


Figure 7. Forward characteristic of body diode

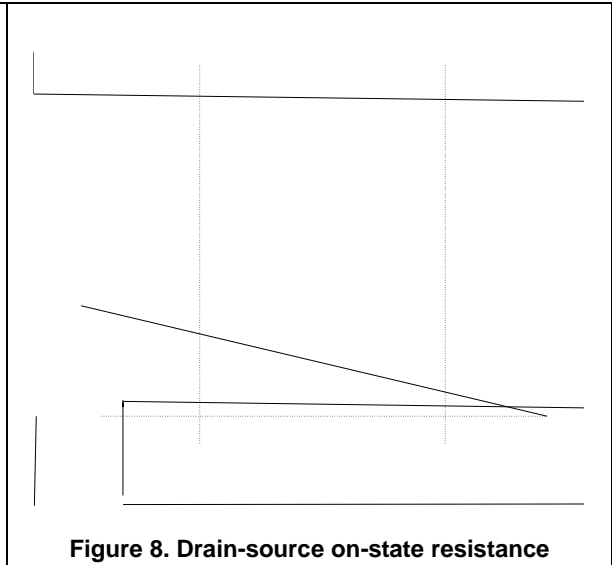


Figure 8. Drain-source on-state resistance

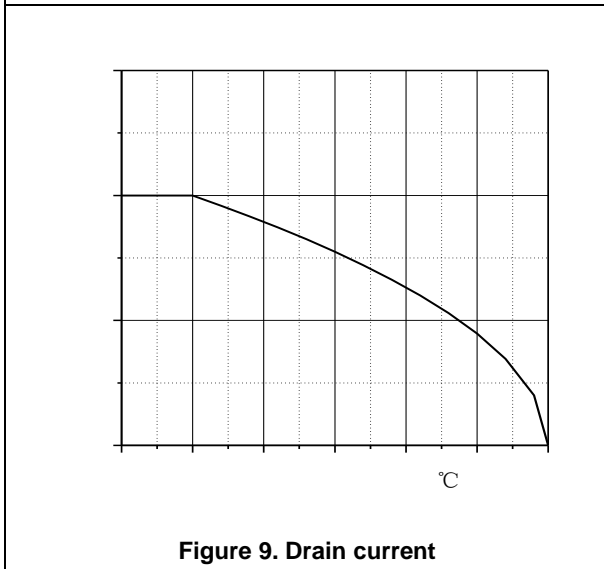


Figure 9. Drain current

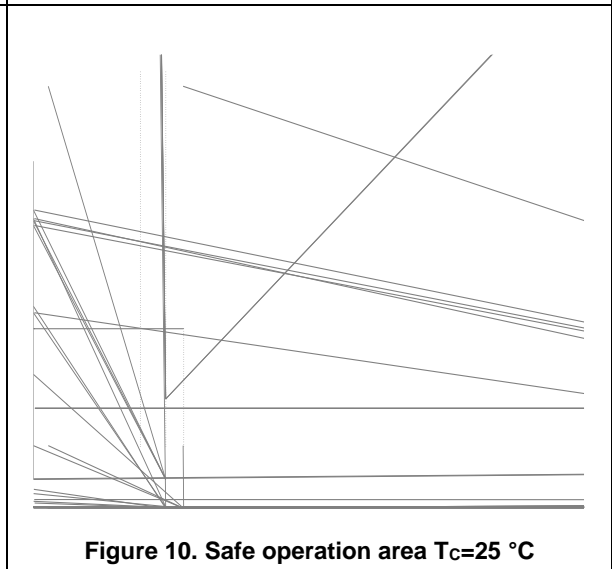


Figure 10. Safe operation area T_C=25 °C

Test circuits and waveforms

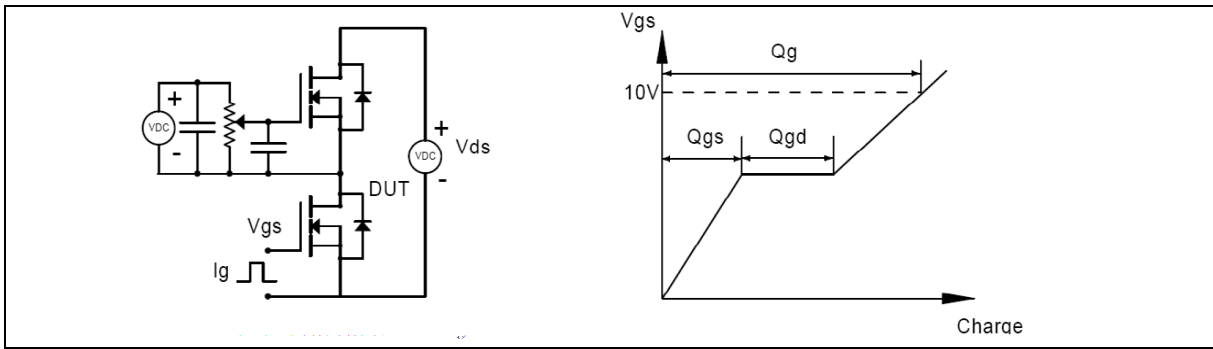


Figure 1. Gate charge test circuit & waveform



Figure 2. Switching time test circuit & waveforms

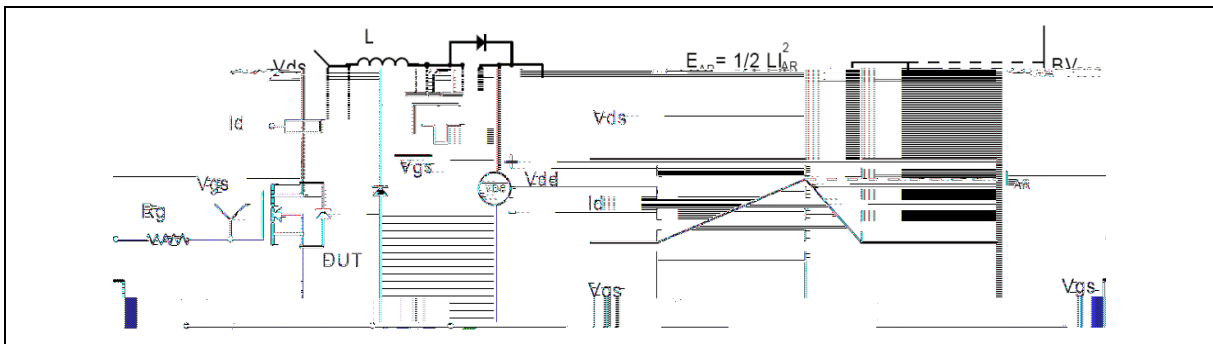


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

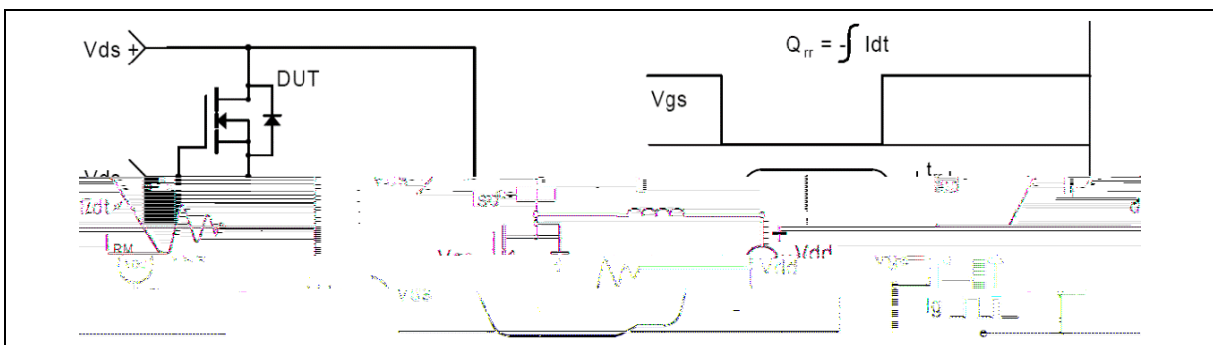
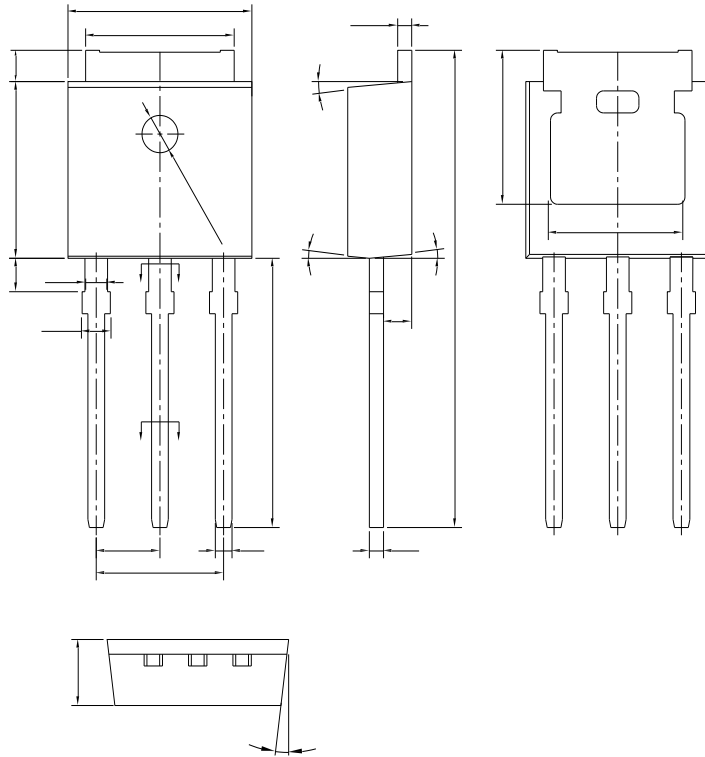


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	2.20	2.30	2.35
A1	0.90	1.01	1.10
b	0.56	-	0.69
b1	0.55	0.60	0.65
b2	0.77	-	0.90
b3	0.76	0.81	0.86
b4	5.23	5.33	5.43
b5	-	-	1.05
c	0.46	-	0.59
c1	0.45	0.51	0.55
c2	0.46	-	0.59
D	6.00	6.10	6.20
D1	5.20	-	-
E	6.50	6.60	6.70
E1	4.60	4.83	5.00
e	2.24	2.29	2.34
e1	4.47	4.57	4.67
H	16.18	16.48	16.78
L	9.00	9.30	9.60
L1	0.95	1.16	1.35
L2	0.90	1.08	1.25

Version 1: TO251-J package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO251-J	75	60	4500	5	22500

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG70R2K6AF	TO251	yes	yes	yes

