

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.

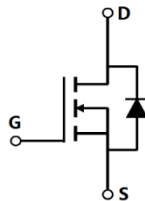
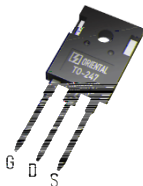
GreenMOS[®]



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Parameter	Value	Unit
$V_{DS, min} @ T_{j(max)}$	700	V
$I_D, pulse$	240	A
$R_{DS(ON), max} @ V_{GS}=10V$	35	m
Q_g	91.6	nC

Product Name	Package	Marking
OSG65R035HZF	TO247	OSG65R035HZ



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	80	A
Continuous drain current ¹⁾ , $T_C=100$ °C		50	
Pulsed drain current ²⁾ , $T_C=25$ °C	$I_{D, pulse}$	240	A
Continuous diode forward current ¹⁾ , $T_C=25$ °C	I_S	80	A
Diode pulsed current ²⁾ , $T_C=25$ °C	$I_{S, pulse}$	240	A
Power dissipation ³⁾ , $T_C=25$ °C	P_D	500	W
Single pulsed avalanche energy ⁵⁾	E_{AS}	2800	mJ
MOSFET dv/dt ruggedness, V_{DS}	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS}	dv/dt	50	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	0.25	°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}	650			V	$V_{GS}=0$ V, $I_D=2$ mA
		700	770			$V_{GS}=0$ V, $I_D=2$ mA, $T_j=150$ °C
Gate threshold voltage	$V_{GS(th)}$	3.5		4.5	V	$V_{DS}=V_{GS}$, $I_D=2$ mA
Drain-source on-state resistance	$R_{DS(ON)}$		0.03	0.035		$V_{GS}=10$ V, $I_D=40$ A
			0.072			$V_{GS}=10$ V, $I_D=40$ 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}			10	A	$V_{DS}=650$ V, $V_{GS}=0$ V

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		7048.8		pF	$V_{GS}=0\text{ V}$, $V_{DS}=50\text{ V}$, 00 kHz
Output capacitance	C_{oss}		564.9		pF	
Reverse transfer capacitance	C_{rss}		15.2		pF	
Turn-on delay time	$t_{d(on)}$		173.7		ns	$V_{GS}=10\text{ V}$, $V_{DS}=400\text{ V}$, $R_G=25$ $I_D=30\text{ A}$
Rise time	t_r		135.1		ns	
Turn-off delay time	$t_{d(off)}$		176.4		ns	
Fall time	t_f		80.1		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
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Electrical Characteristics Diagrams

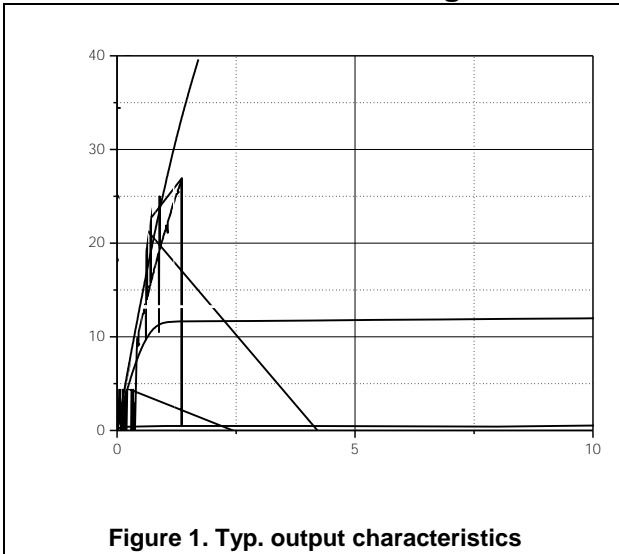


Figure 1. Typ. output characteristics

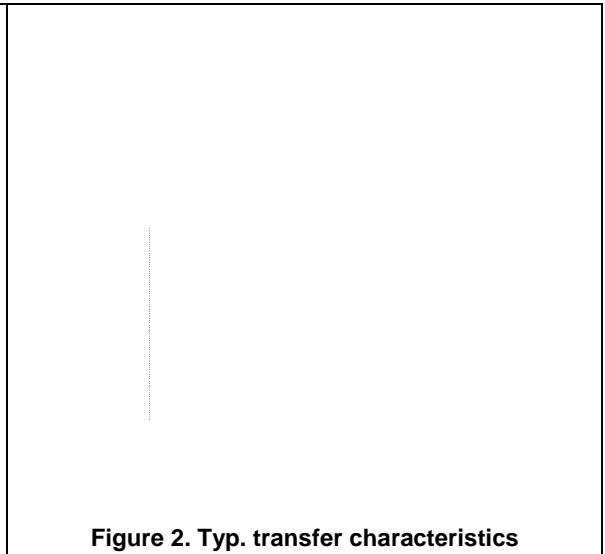


Figure 2. Typ. transfer characteristics

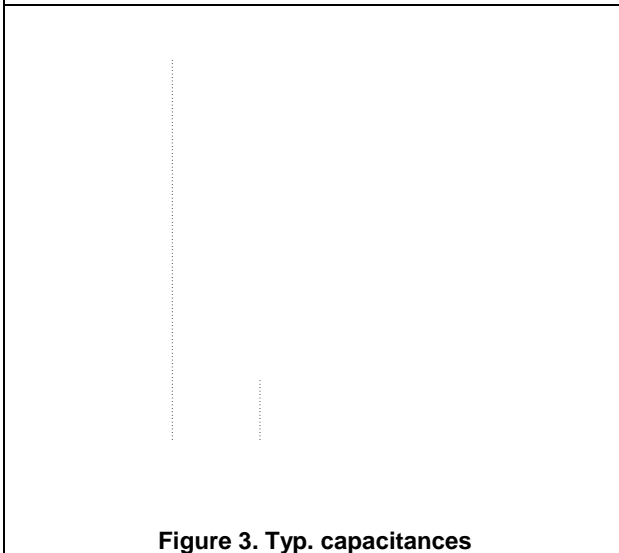


Figure 3. Typ. capacitances

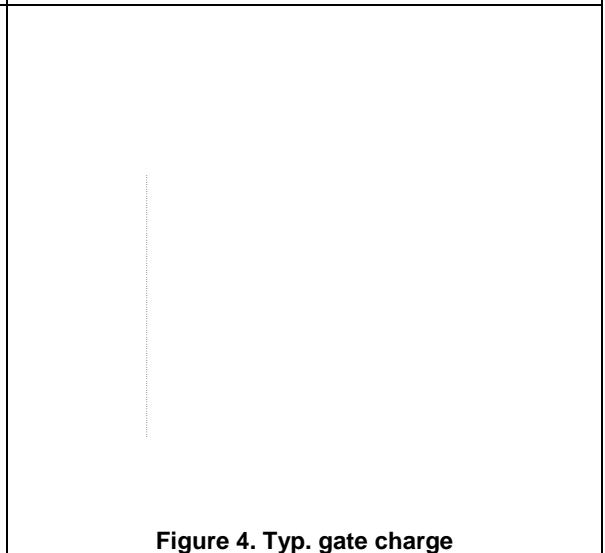


Figure 4. Typ. gate charge

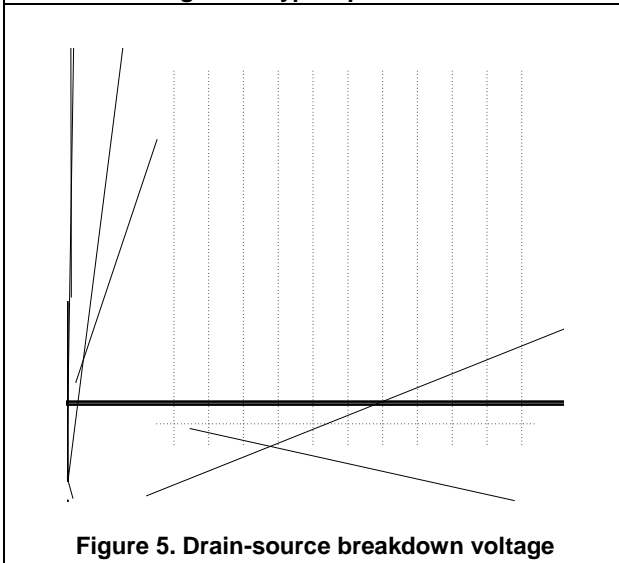


Figure 5. Drain-source breakdown voltage

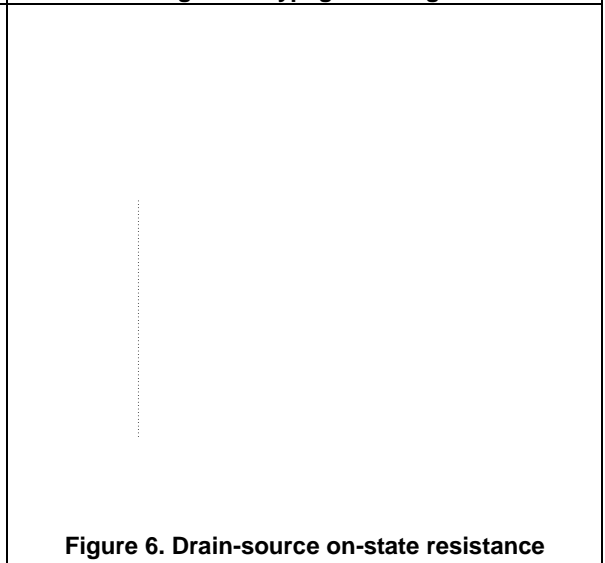


Figure 6. Drain-source on-state resistance

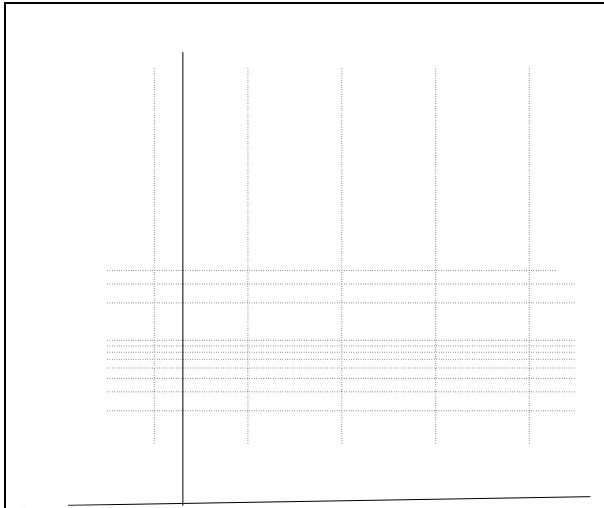


Figure 7. Forward characteristic of body diode

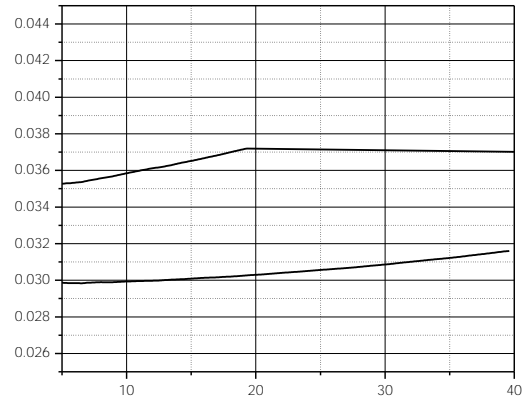


Figure 8. Drain-source on-state resistance

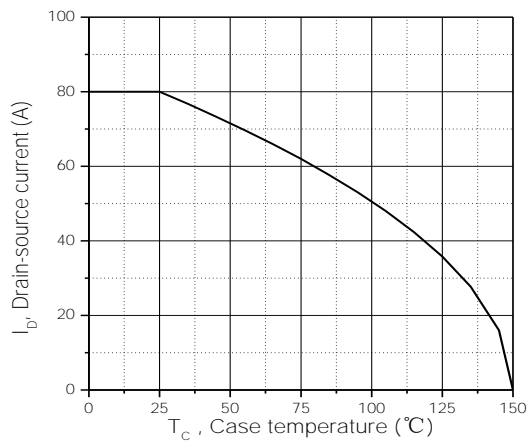


Figure 9. Drain current

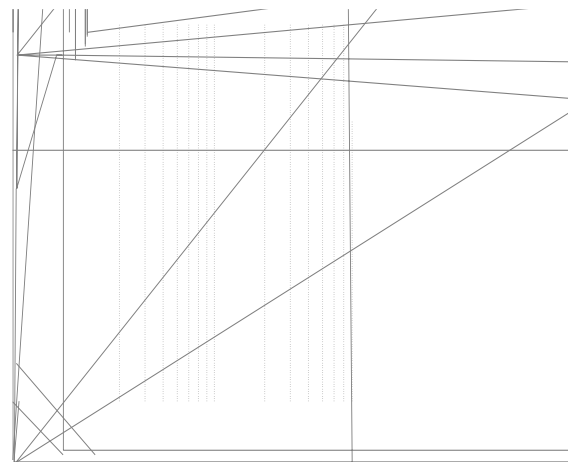


Figure 10. Safe operation area $T_C=25\text{ }^\circ\text{C}$

Test circuits and waveforms

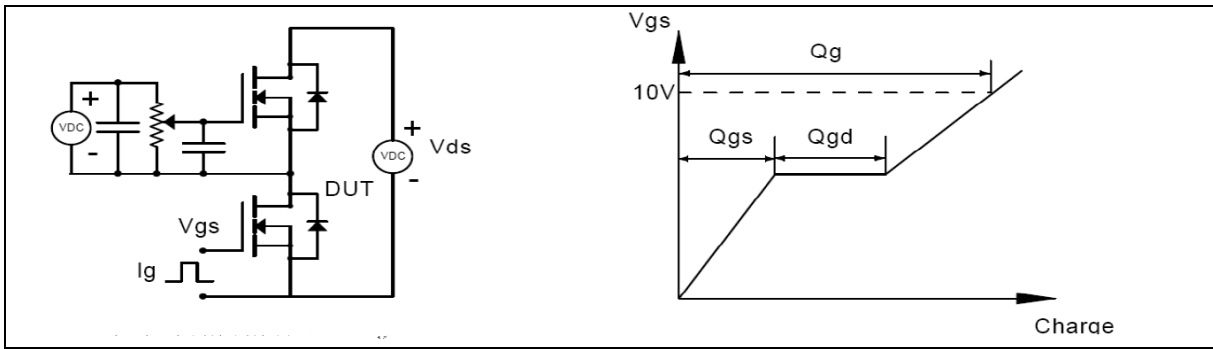


Figure 1. Gate charge test circuit & waveform

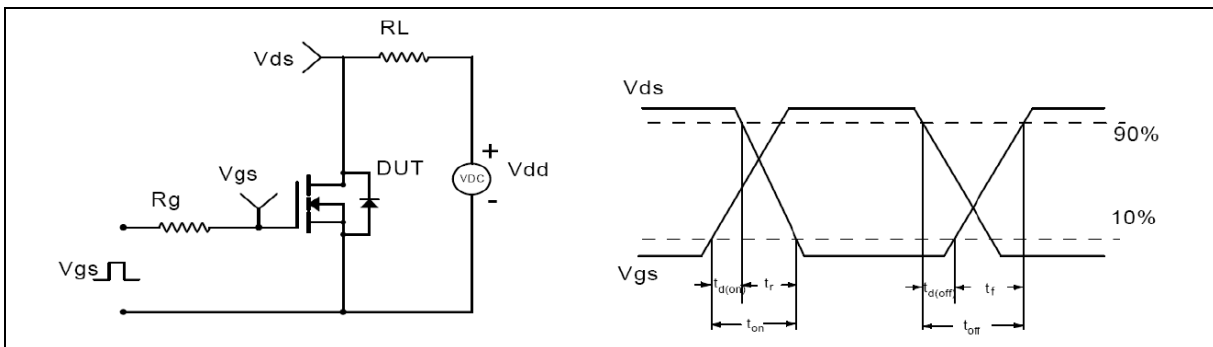


Figure 2. Switching time test circuit & waveforms

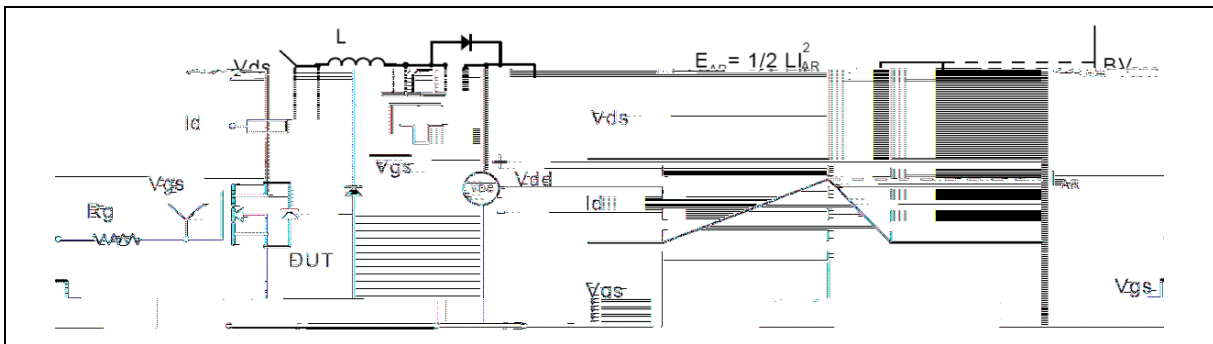


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

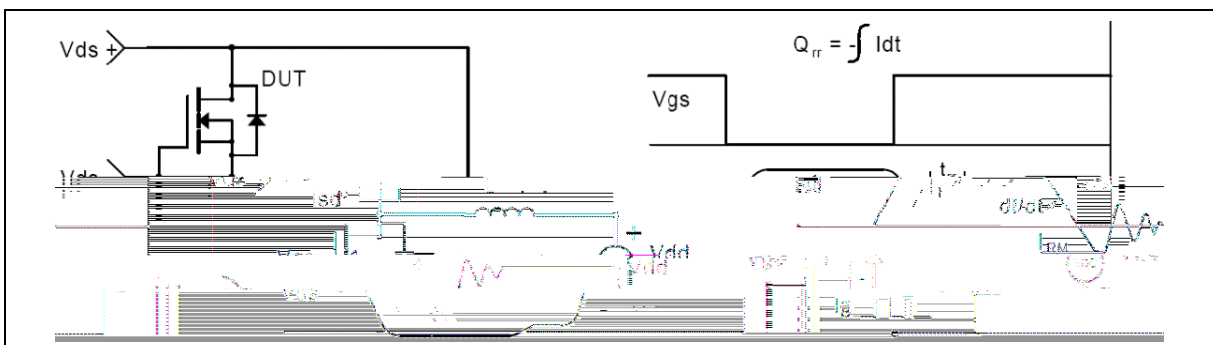
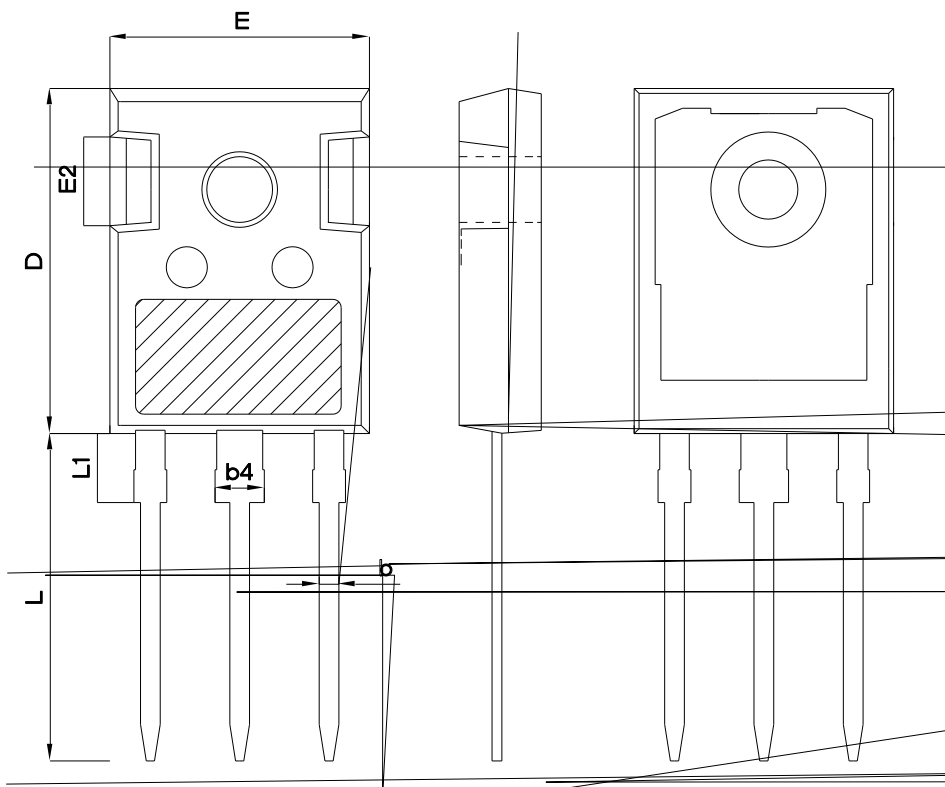


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.80	5.00	5.20
A1	2.21	2.41	2.59
A2	1.85	2.00	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
b4	2.91	3.01	3.21
c	0.51	0.61	0.75
D	20.80	21.00	21.30
D1	16.25	16.55	16.85
E	15.50	15.80	16.10
E1	13.00	13.30	13.60
E2	4.80	5.00	5.20
E3	2.30	2.50	2.70
e	5.44 BSC		
L	19.82	19.92	20.22
L1	-	-	4.30
	3.40	3.60	3.80
	-	-	7.30
S	6.15 BSC		

Version1: TO247-C package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO247-C	30	11	330	6	1980

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG65R035HZF	TO247	yes	yes	yes

