

General Description

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.

Features

- Low $R_{DS(ON)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity



Applications

- PC power
- LED lighting
- Telecom power
- Server power
- EV Charger
- Solar/UPS

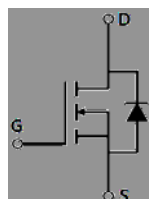
Key Performance Parameters

Parameter	Value	Unit
$V_{DS, min} @ T_{j(max)}$	650	V
$I_{D, pulse}$	141	A
$R_{DS(ON), max} @ V_{GS}=10V$	70	m
Q_g	47	nC

Marking Information

Product Name	Package	Marking
OSG60R070HF	TO247	OSG60R070H

Package & Pin Information



Absolute Maximum Ratings at $T_j=25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	600	V
Gate-source voltage	V_{GS}	± 30	V
Continuous drain current ¹⁾ , $T_C=25^\circ\text{C}$	I_D	47	A
Continuous drain current ¹⁾ , $T_C=100^\circ\text{C}$		30	
Pulsed drain current ²⁾ , $T_C=25^\circ\text{C}$	$I_{D, pulse}$	141	A
Continuous diode forward current ¹⁾ , $T_C=25^\circ\text{C}$	I_S	47	A
Diode pulsed current ²⁾ , $T_C=25^\circ\text{C}$	$I_{S, pulse}$	141	A
Power dissipation ³⁾ , $T_C=25^\circ\text{C}$	P_D	278	W
Single pulsed avalanche energy ⁵⁾	E_{AS}	1000	mJ
MOSFET dv/dt ruggedness, $V_{DS}=0\dots 480\text{ V}$	dv/dt	50	V/ns
Reverse diode dv/dt, $V_{DS}=0\dots 480\text{ V}$, $I_{SD} = I_D$	dv/dt	15	V/ns
Operation and storage temperature	T_{stg}, T_j	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R_{JC}	0.45	$^\circ\text{C/W}$
Thermal resistance, junction-ambient ⁴⁾	R_{JA}	62	$^\circ\text{C/W}$

Electrical Characteristics at $T_j=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	600			V	$V_{GS}=0\text{ V}$, $I_D=1\text{ mA}$
		650				$V_{GS}=0\text{ V}$, $I_D=1\text{ mA}$, $T_j=150^\circ\text{C}$
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	$V_{DS}=V_{GS}$, $I_D=1\text{ mA}$
Drain-source on-state resistance	$R_{DS(on)}$		0.060	0.070		$V_{GS}=10\text{ V}$, $I_D=23.5\text{ A}$
			0.14			$V_{GS}=10\text{ V}$, $I_D=23.5\text{ A}$, $T_j=150^\circ\text{C}$
Gate-source leakage current	I_{GSS}			100	nA	$V_{GS}=30\text{ V}$
				-100		$V_{GS}=-30\text{ V}$
Drain-source leakage current	I_{DSS}			1	μA	$V_{DS}=600\text{ V}$, $V_{GS}=0\text{ V}$

OSG60R070HF

N-Channel Power MOSFET



Max.	Unit	Test condition
	pF	$V_{GS}=0\text{ V}$, $V_{DS}=50\text{ V}$, $f=1\text{ MHz}$
	pF	
	pF	
	ns	$V_{GS}=10\text{ V}$, $V_{DS}=400\text{ V}$, $R_G=25\text{ }\Omega$, $I_D=25\text{ A}$
	ns	
	ns	
	ns	

Max.	Unit	Test condition
	nC	$V_{GS}=10\text{ V}$, $V_{DS}=400\text{ V}$, $I_D=25\text{ A}$
	nC	
	nC	
	V	

Max. Unit Test condition

Electrical Characteristics Diagrams

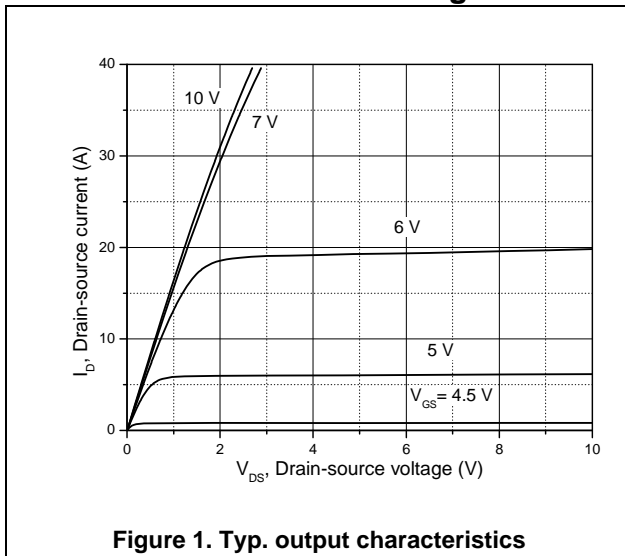


Figure 1. Typ. output characteristics

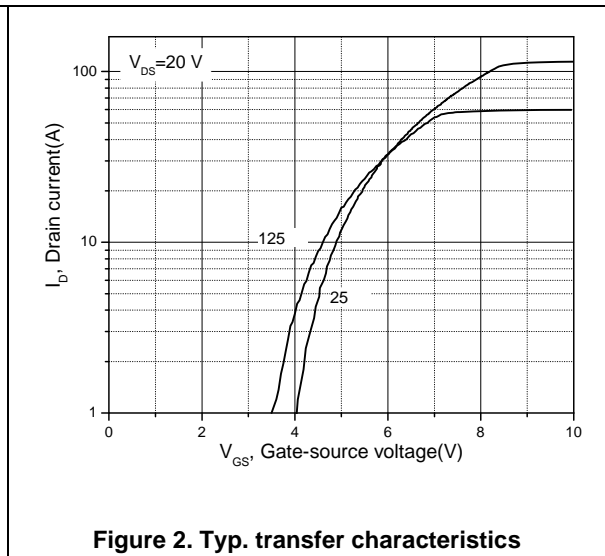


Figure 2. Typ. transfer characteristics

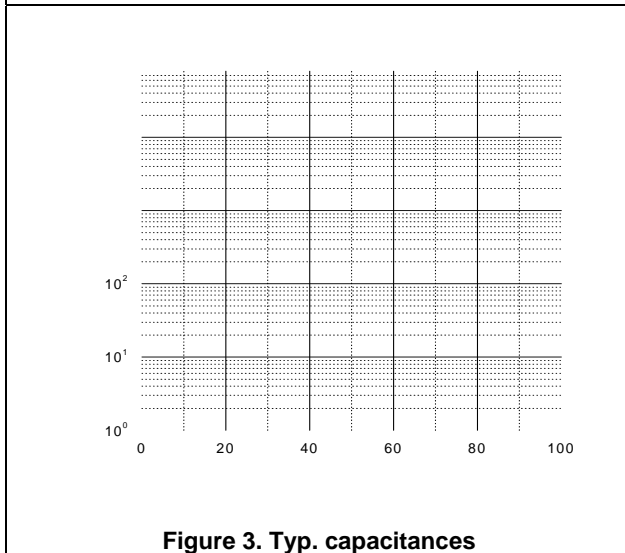


Figure 3. Typ. capacitances

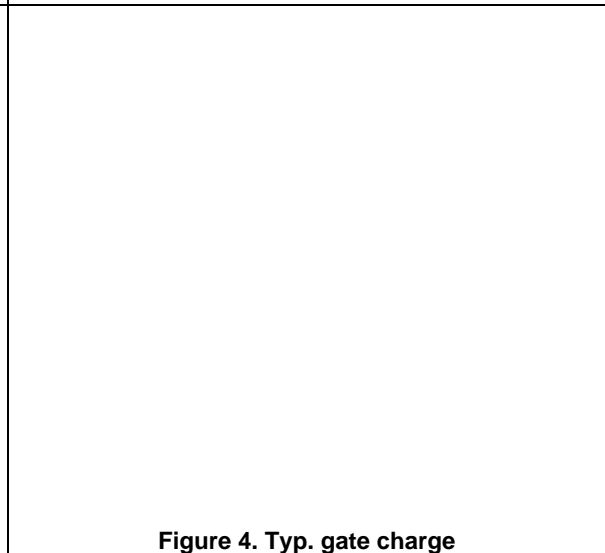


Figure 4. Typ. gate charge

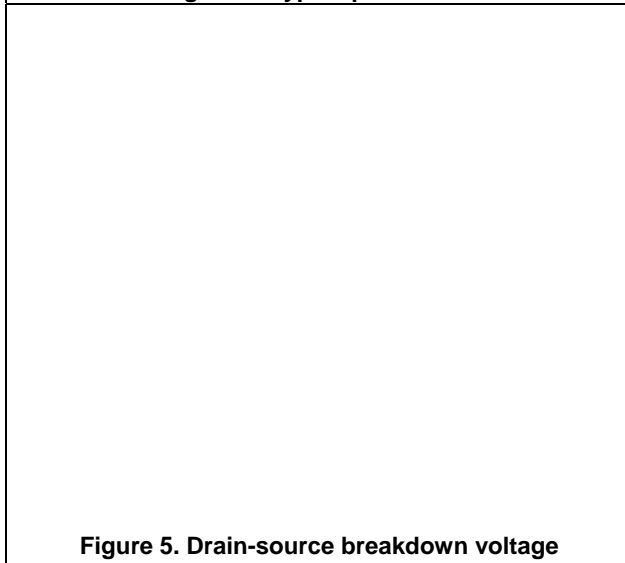


Figure 5. Drain-source breakdown voltage

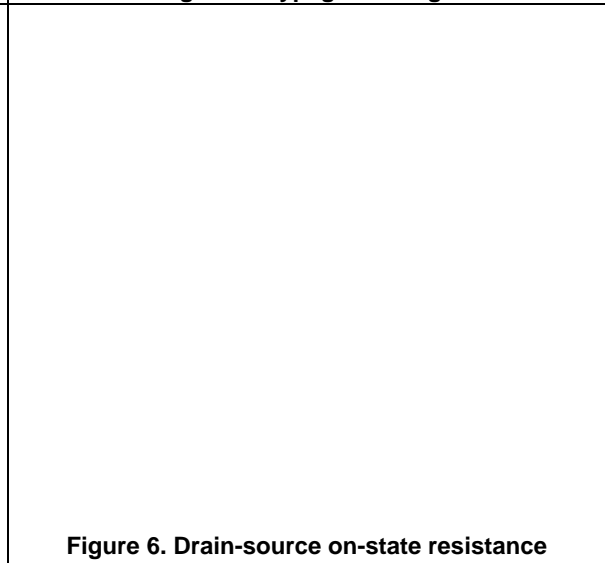


Figure 6. Drain-source on-state resistance

	<p><u>on-state resistance</u></p>
	<p><u>ation area T_C=25 °C</u></p>

Test circuits and 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

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
OSG60R070HF	TO247	yes	yes	yes

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