

## **General Description**

The GreenMOS<sup>®</sup>

**OSG55R092HF**

Enhancement Mode N-Channel Power MOSFET



Unless otherwise noted

Symbol	Value	Unit
$V_{DS}$	550	V
$V_{GS}$	$\pm 30$	V
$I_D$	40	A
	25	
$I_{D, pulse}$	120	A
$I_S$	40	A
$I_{S, pulse}$	120	A
$P_D$	101	W
$E_{AS}$	770	mJ
dv/dt	50	V/ns
dv/dt	15	V/ns
$T_{stg}, T_j$	-55 to 150	$^{\circ}C$

Symbol	Value	Unit
$R_{JC}$	1.2	$^{\circ}C/W$

Unit

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### Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	$C_{iss}$		2425.5		pF	$V_{GS}=0\text{ V}$ , $V_{DS}=50\text{ V}$ , $f=100\text{ kHz}$
Output capacitance	$C_{oss}$		244.3		pF	
Reverse transfer capacitance	$C_{rss}$		10.3		pF	
Turn-on delay time	$t_{d(on)}$		53.7		ns	$V_{GS}=10\text{ V}$ , $V_{DS}=400\text{ V}$ , $R_G=2\ \Omega$ , $I_D=20\text{ A}$
Rise time	$t_r$		79.3		ns	
Turn-off delay time	$t_{d(off)}$		122.9		ns	
Fall time	$t_f$		59.1		ns	

### Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	$Q_g$		38.6		nC	$V_{GS}=10\text{ V}$ , $V_{DS}=400\text{ V}$ , $I_D=20\text{ A}$
Gate-source charge	$Q_{gs}$		9		nC	
Gate-drain charge	$Q_{gd}$		15.2		nC	
Gate plateau voltage	$V_{plateau}$		5.9		V	

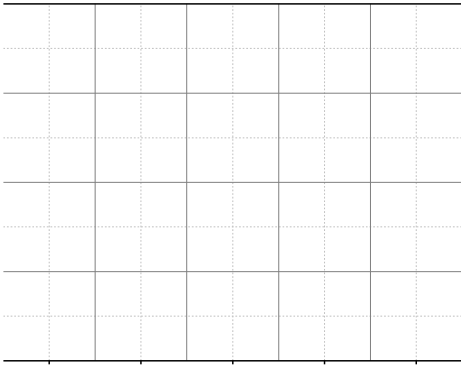
### Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	$V_{SD}$			1.4	V	$I_S=40\text{ A}$ , $V_{GS}=0\text{ V}$
Reverse recovery time	$t_{rr}$		339		ns	$V_R=400\text{ V}$ , $I_S=20\text{ A}$ , $di/dt=100\text{ A}/\mu\text{s}$
Reverse recovery charge	$Q_{rr}$		4.9		$\mu\text{C}$	
Peak reverse recovery current	$I_{rrm}$		27.9		A	

### Note

- 1) Calculated continuous current based on maximum allowable junction temperature.
- 2) Repetitive rating; pulse width limited by max. junction temperature.
- 3)  $P_d$  is based on max. junction temperature, using junction-case thermal resistance.
- 4) The value of  $R_{JA}$  is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with  $T_a=25\text{ }^\circ\text{C}$ .
- 5)  $V_{DD}=100\text{ V}$ ,  $V_{GS}=10\text{ V}$ ,  $L=10\text{ mH}$ , starting  $T_j=25\text{ }^\circ\text{C}$ .

### Electrical Characteristics Diagrams



**Figure 1. Typ. output characteristics**

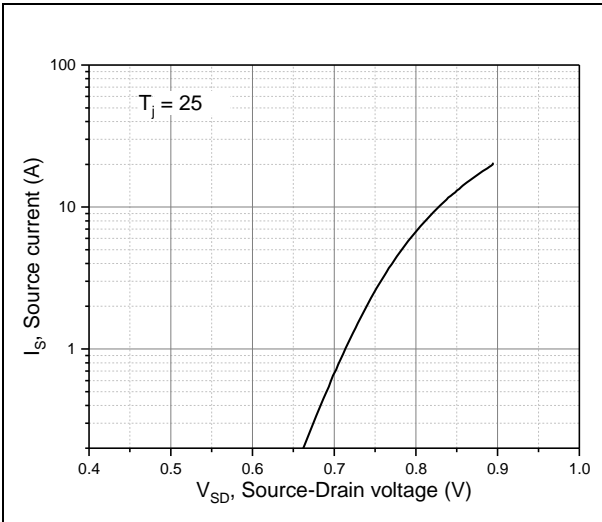
**Figure 2. Typ. transfer characteristics**

**Figure 3. Typ. capacitances**

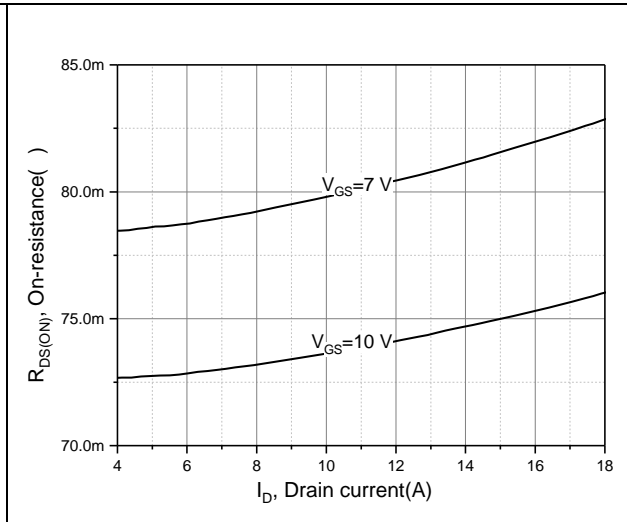
**Figure 4. Typ. gate charge**

**Figure 5. Drain-source breakdown voltage**

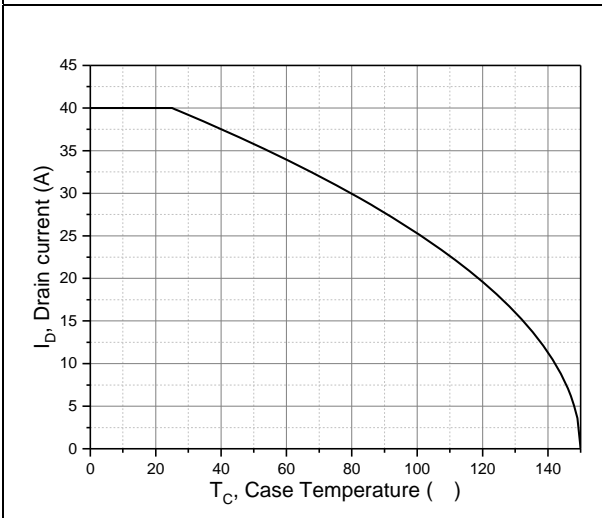
**Figure 6. Drain-source on-state resistance**



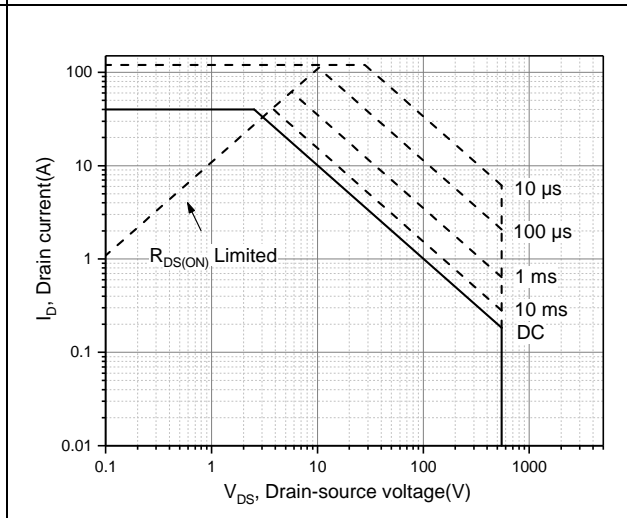
**Figure 7. Forward characteristic of body diode**



**Figure 8. Drain-source on-state resistance**



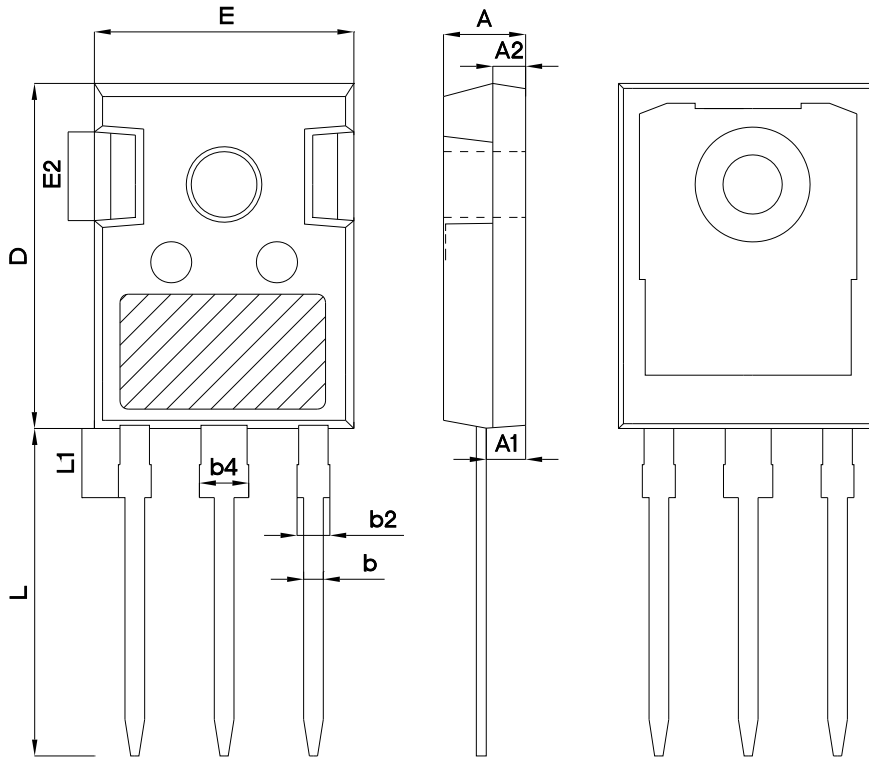
**Figure 9. Drain current**



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



**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
P	3.40	3.60	3.80
P1	-	-	7.30
S	6.15 BSC		

Version 1; 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
TO247-J	30	20	600	5	3000

## Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG55R092HF	TO247	yes	yes	yes

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