

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.

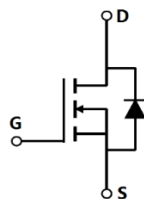
GreenMOS[®]



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Parameter	Value	Unit
$V_{DS, min} @ T_{j(max)}$	700	V
$I_D, pulse$	31.5	A
$R_{DS(ON)}, max @ V_{GS}=10V$	420	
Q_g	14.8	nC

Product Name	Package	Marking
OSG65R420PF	TO220	OSG65R420P



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	10.5	A
Continuous drain current ¹⁾ , $T_C=100$ °C		6.5	
Pulsed drain current ²⁾ , $T_C=25$ °C	$I_{D, pulse}$		

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		702.7		pF	$V_{GS}=0\text{ V}$, $V_{DS}=50\text{ V}$, Hz
Output capacitance	C_{oss}		52.2		pF	
Reverse transfer capacitance	C_{rss}		2.5		pF	
Turn-on delay time	$t_{d(on)}$		23.7		ns	$V_{GS}=10\text{ V}$, $V_{DS}=520\text{ V}$, $R_G=25$ $I_D=10.5\text{ A}$
Rise time	t_r		24.1		ns	
Turn-off delay time	$t_{d(off)}$		34.1		ns	
Fall time	t_f		36.8		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		14.8		nC	$V_{GS}=10\text{ V}$, $V_{DS}=520\text{ V}$, $I_D=10.5\text{ A}$
Gate-source charge	Q_{gs}		3.8		nC	
Gate-drain charge	Q_{gd}		5.2		nC	

Gate plateau voltage $V_{plateau}$

Electrical Characteristics Diagrams

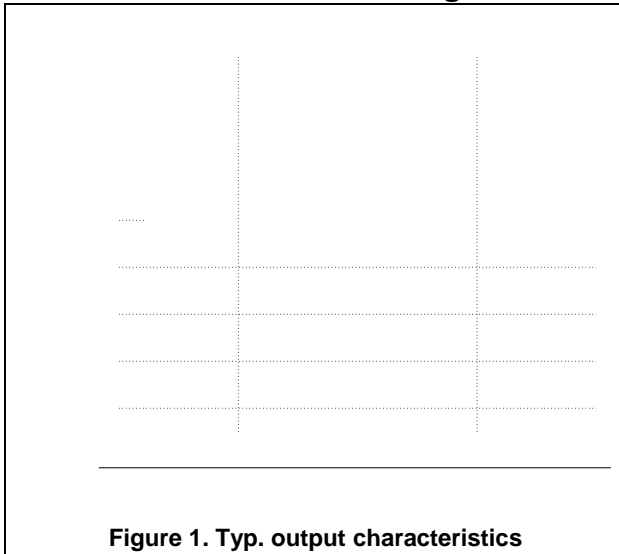


Figure 1. Typ. output characteristics

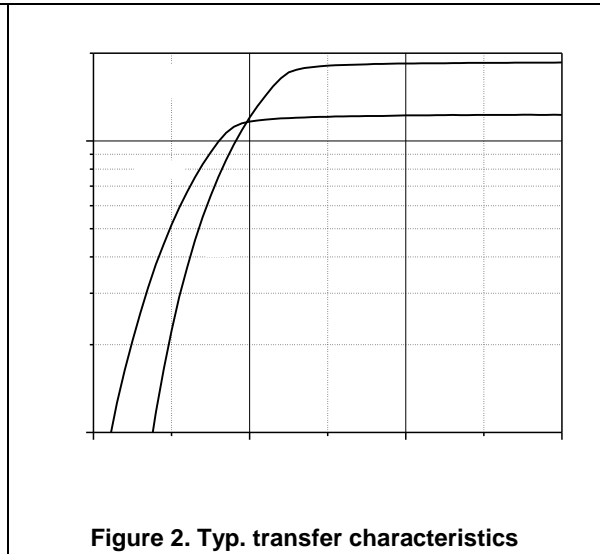


Figure 2. Typ. transfer characteristics

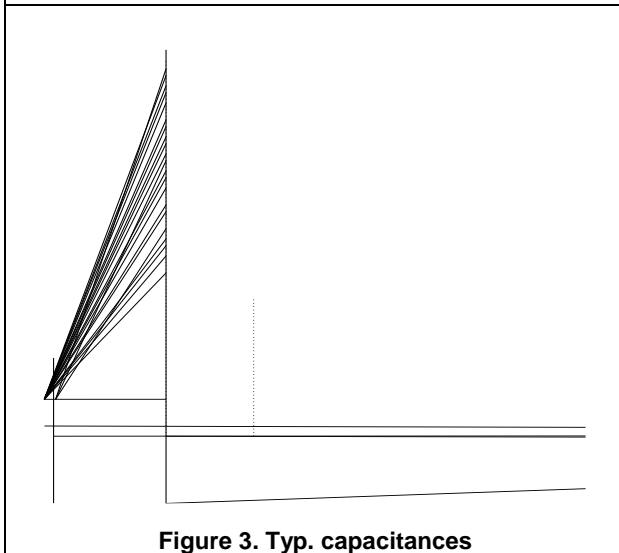


Figure 3. Typ. capacitances

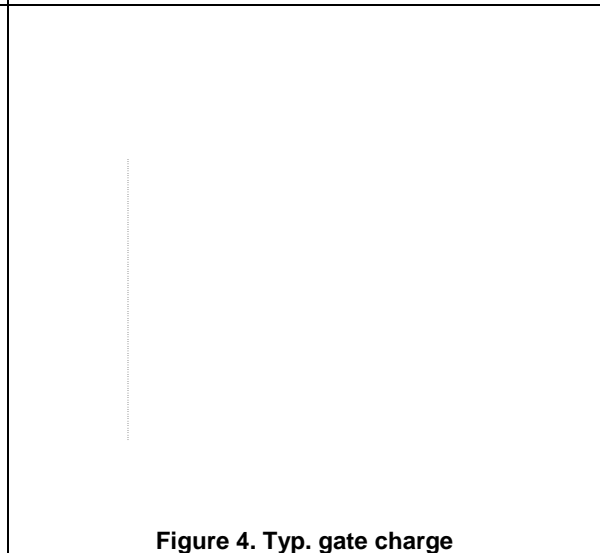


Figure 4. Typ. gate charge

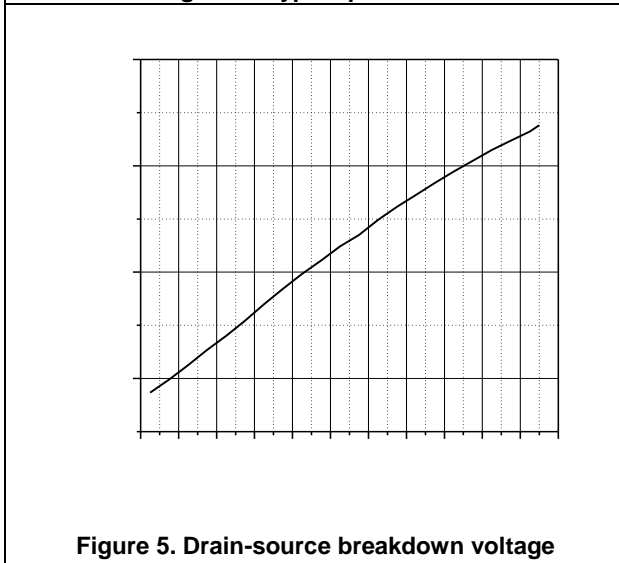


Figure 5. Drain-source breakdown voltage

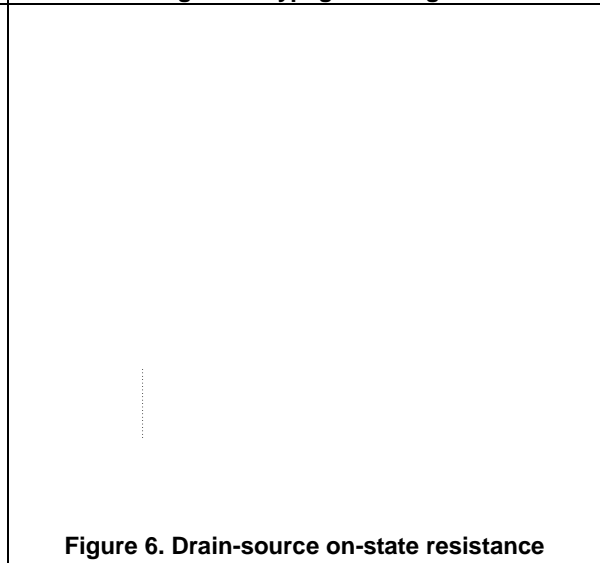


Figure 6. Drain-source on-state resistance

Enhancement Mode N-

Test circuits and waveforms

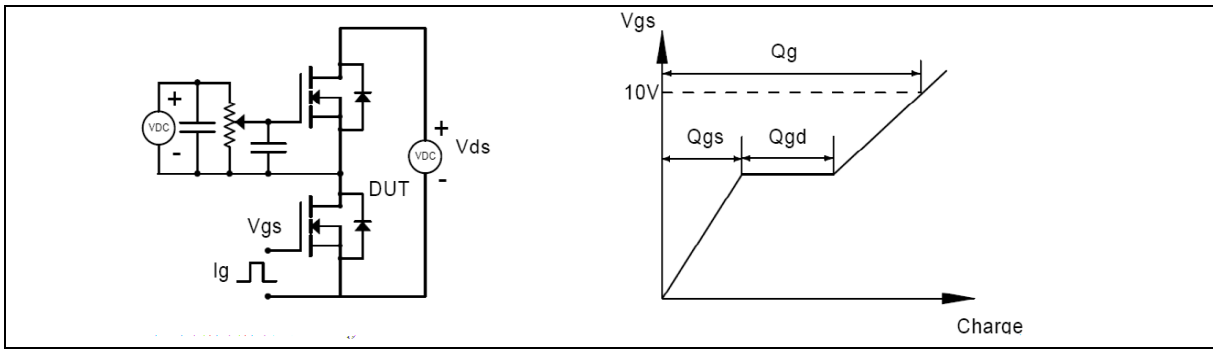


Figure 1. Gate charge test circuit & waveform

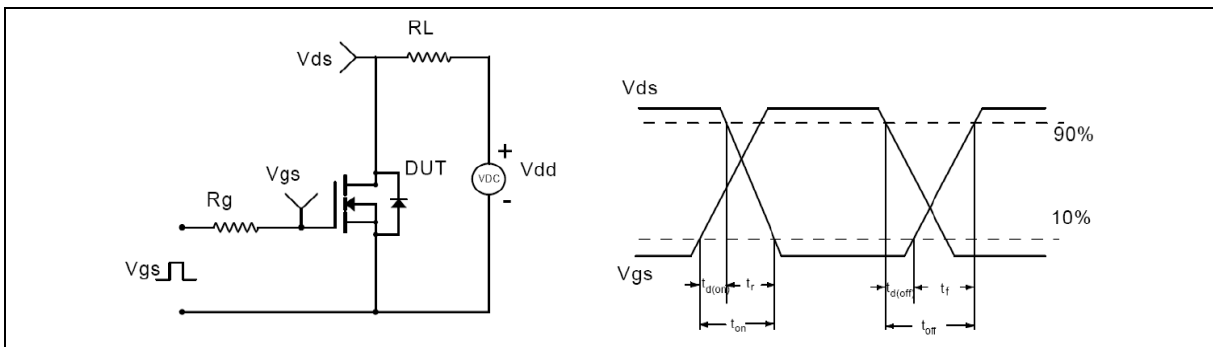


Figure 2. Switching time test circuit & waveforms

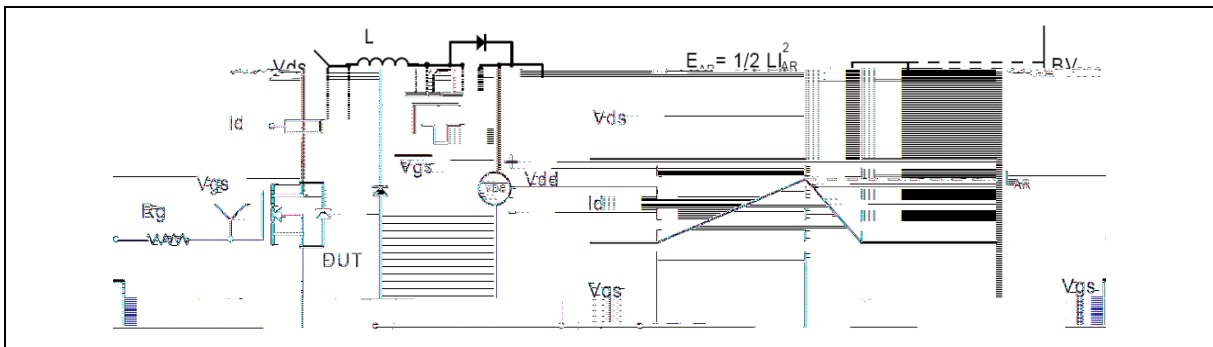


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

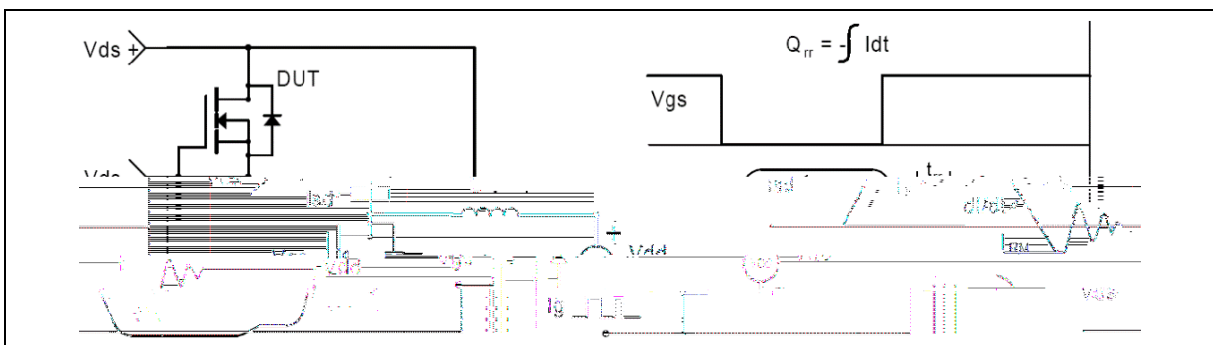
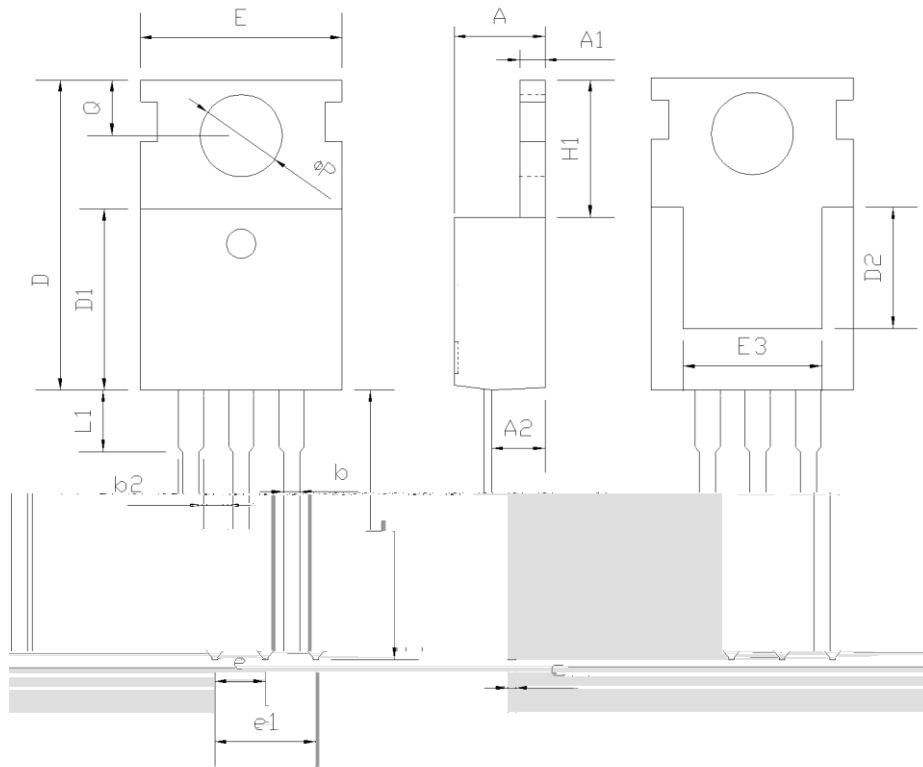


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.37	4.57	4.77
A1	1.25	1.30	1.45
A2	2.20	2.40	2.60
b	0.70	0.80	0.95
b2	1.17	1.27	1.47
c	0.40	0.50	0.65
D	15.10	15.60	16.10
D1	8.80	9.10	9.40
D2	5.50	-	-
E	9.70	10.00	10.30
E3	7.00	-	-
e	2.54BSC		
e1	5.08BSC		
H1	6.25	6.50	6.85
L	12.75	13.50	13.80
L1	-	3.10	3.40
	3.40	3.60	3.80
Q	2.60	2.80	3.00

Version 1: TO220-P package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220-P	50	20	1000	6	6000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG65R420PF	TO220	yes	yes	yes