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®

RoHS

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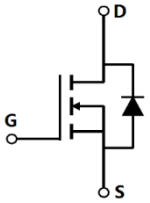
Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	700	V
$I_{D,\ pulse}$	54	A
$R_{DS(ON),\ max}$ @ V_{GS}=10V	220	m
Q_g	21.7	nC

Product Name	Package	Marking
OSG65R220KZF	TO263	OSG65R220KZ



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	18	A
Continuous drain current[1], T_C=100 °C		11.5	
Pulsed drain current[2], T_C=25 °C	$I_{D,\ pulse}$	54	A
Continuous diode forward current[1], T_C=25 °C	I_S	18	A
Diode pulsed current[2], T_C=25 °C	$I_{S,\ pulse}$	54	A
Power dissipation[3] ,T_C=25 °C	P_D	151	W
Single pulsed avalanche energy[5]	E_{AS}	272	mJ
MOSFET dv/dt ruggedness, V_{DS}	dv/dt	100	V/ns
Reverse diode dv/dt, V_{DS} SD D	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	0.82	°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=250 uA
		700	770			V_{GS}=0 V, I_D=250 uA, T_j=150 °C
Gate threshold voltage	$V_{GS(th)}$	3.0		4.5	V	V_{DS}=V_{GS}, I_D=250 uA
Drain-source on-state resistance	$R_{DS(ON)}$		0.18	0.22		V_{GS}=10 V, I_D=9 A
			0.45			V_{GS}=10 V, I_D=9 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}		1493		pF	V_{GS}=0 V, V_{DS}=50 V, MHz
Output capacitance	C_{oss}		101		pF	
Reverse transfer capacitance	C_{rss}		2.05		pF	
Turn-on delay time	$t_{d(on)}$		45.28		ns	
Rise time	t_r		82.64		ns	
Turn-off delay time	$t_{d(off)}$		42.20		ns	
Fall time	t_f		32.56		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition

Test circuits and waveforms

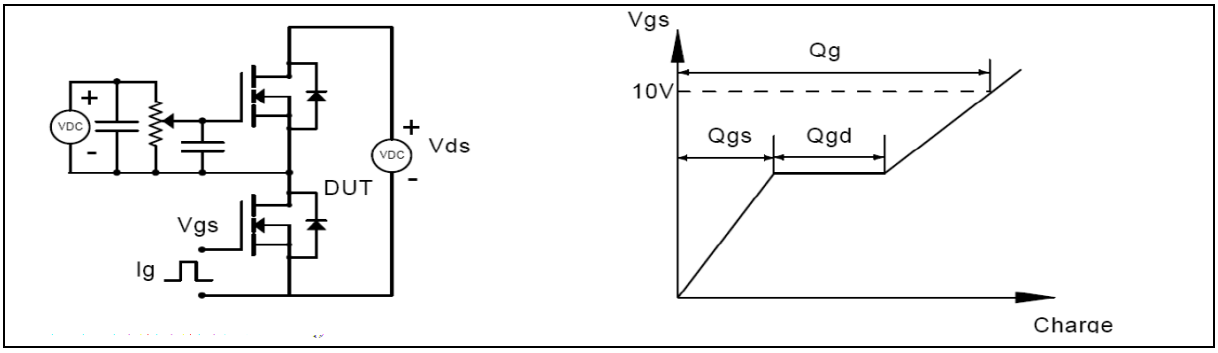


Figure 1. Gate charge test circuit & waveform

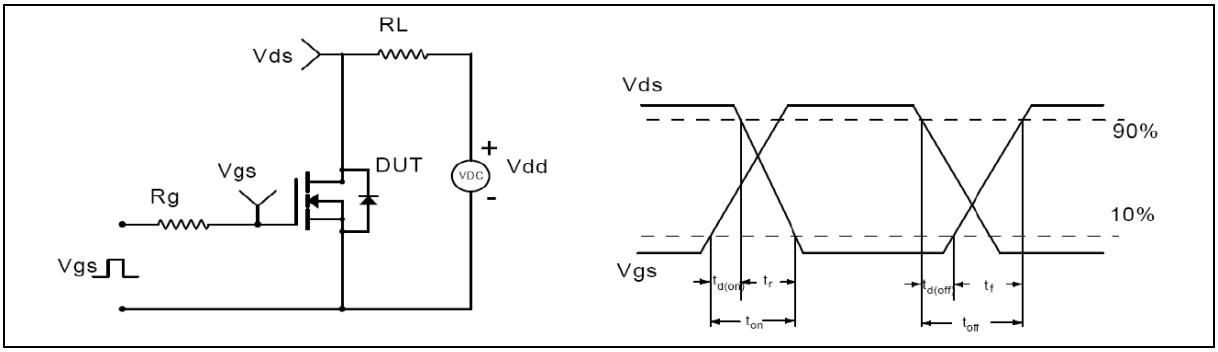


Figure 2. Switching time test circuit & waveforms

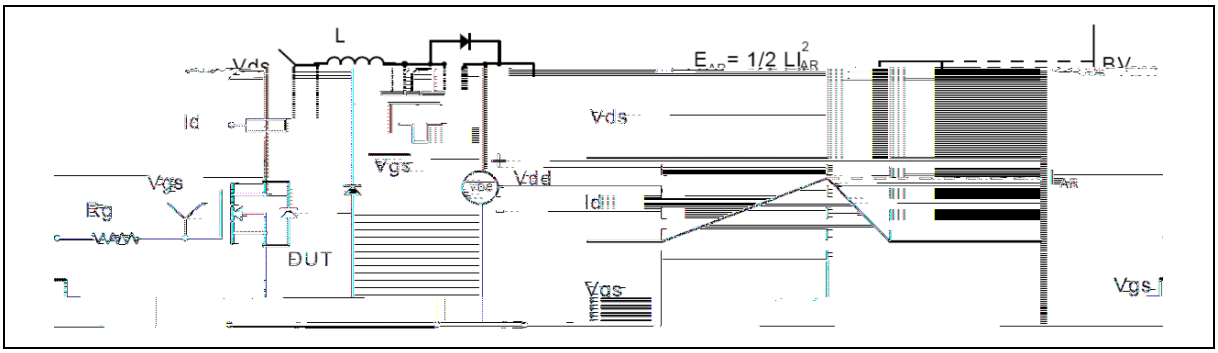


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

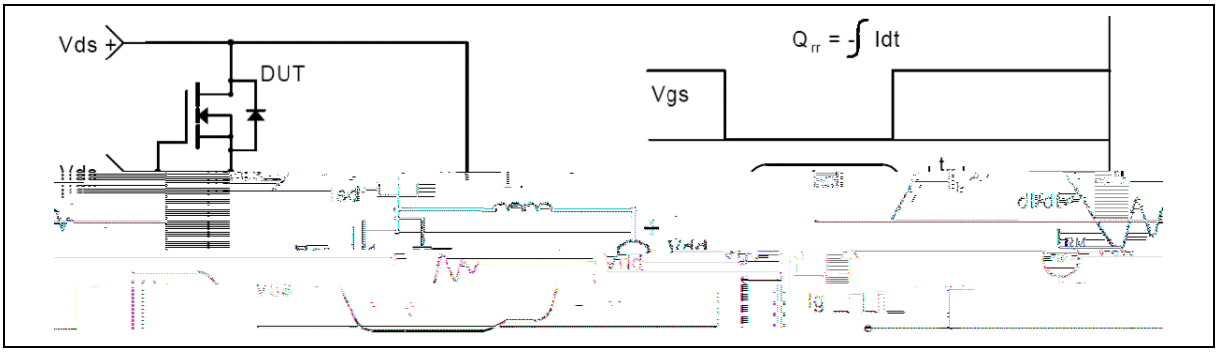
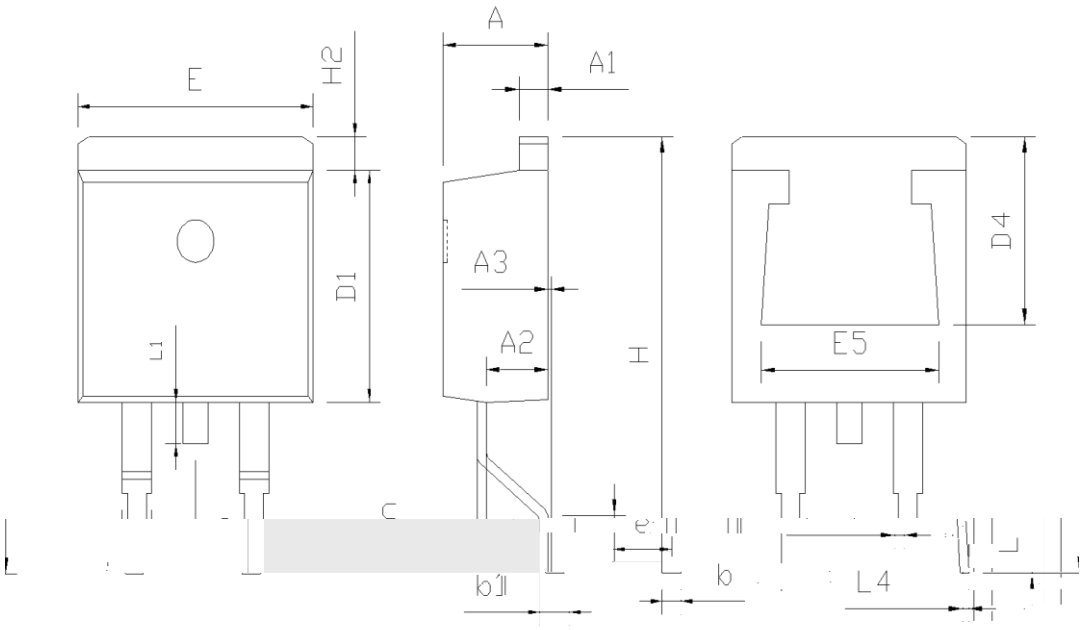


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.37	4.57	4.77
A1	1.22	1.27	1.42
A2	2.49	2.69	2.89
A3	0.00	0.13	0.25
b	0.70	0.81	0.96
b1	1.17	1.27	1.47
c	0.30	0.38	0.53
D1	8.50	8.70	8.90
D4	6.60	-	-
E	9.86	10.16	10.36
E5	7.06	-	-
e	2.54 BSC		
H	14.70	15.10	15.50
H2	1.07	1.27	1.47
L	2.00	2.30	2.60
L1	1.40	1.55	1.70
L4	0.25 BSC		
	0°	5°	9°

Version1: TO263-C package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO263-C	50	20	1000	6	6000