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® Z series is integrated with fast recovery diode (FRD) to minimize reverse recovery time. It is suitable for resonant switching topologies to reach higher efficiency, higher reliability and smaller form factor.

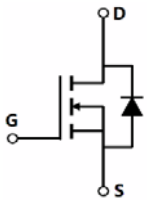
- Low $R_{DS(ON)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Ultra-fast and robust body diode

- PC power
- Telecom power
- Server power
- EV Charger
- Motor driver

$V_{DS,\ min}$ @ $T_{j(max)}$	600	V

	108	mΩ
Q_g	37.1	nC

OSG55R108KZF	TO263	OSG55R108KZ



at T_j=25°C unless otherwise noted

Drain-source voltage	V_{DS}	550	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	30	A
Continuous drain current[1], T_C=100 °C		19	
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	90	A
Continuous diode forward current[1], T_C=25 °C	I_S	30	A
Diode pulsed current[2], T_C=25 °C	$I_{S, pulse}$	90	A
Power dissipation[3], T_C=25 °C	P_D	219	W
Single pulsed avalanche energy[5]	E_{AS}	1000	mJ
MOSFET dv/dt ruggedness, V_{DS}=0…480 V	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS}=0…480 V, I_{SD}≤I_D	dv/dt	50	V/ns
Operation and storage temperature	T_{stg}, T_j	-55 to 150	°C

Thermal resistance, junction-case	$R_{θJC}$	0.57	°C/W
Thermal resistance, junction-ambient[4]	$R_{θJA}$	62	°C/W

at T_j=25°C unless otherwise specified

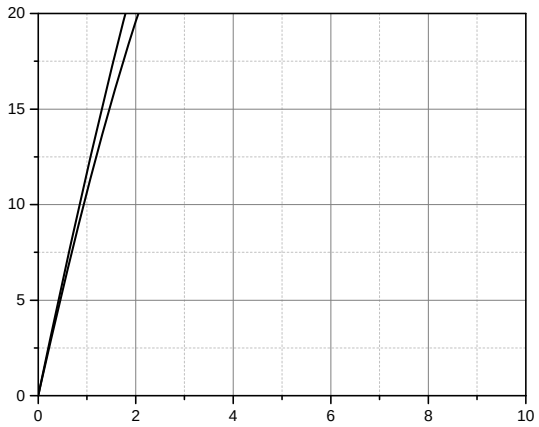
Drain-source breakdown voltage	BV_{DSS}	550			V	V_{GS}=0 V, I_D=1 mA
		600				V_{GS}=0 V, I_D=1 mA, T_j=150 °C
Gate threshold voltage	$V_{GS(th)}$	3.0		4.5	V	V_{DS}=V_{GS}, I_D=1 mA
Drain-source on-state resistance	$R_{DS(ON)}$		0.085	0.108	Ω	V_{GS}=10 V, I_D=15 A
			0.2			V_{GS}=10 V, I_D=15 A, T_j=150 °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	μA	V_{DS}=550 V, V_{GS}=0 V
Gate resistance	R_G		24		Ω	f=1 MHz Open drain

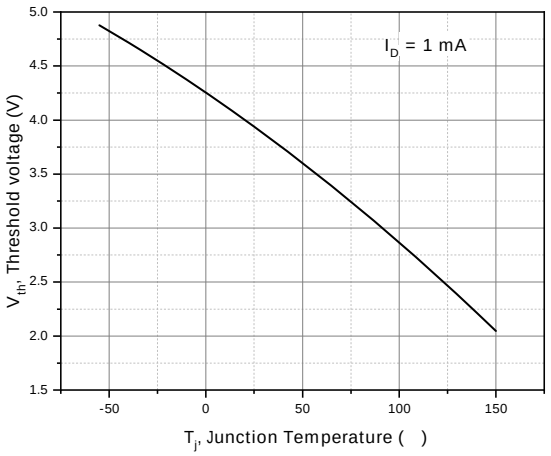
Input capacitance	C_{iss}		2674.5		pF	V_{GS}=0 V, V_{DS}=50 V, f=100 KHz
Output capacitance	C_{oss}		246		pF	
Reverse transfer capacitance	C_{rss}		9.6		pF	
Turn-on delay time	$t_{d(on)}$		67.4		ns	V_{GS}=10 V, V_{DS}=400 V, R_G=2 Ω, I_D=16 A
Rise time	t_r		71.1		ns	
Turn-off delay time	$t_{d(off)}$		103.9		ns	
Fall time	t_f		33.4		ns	

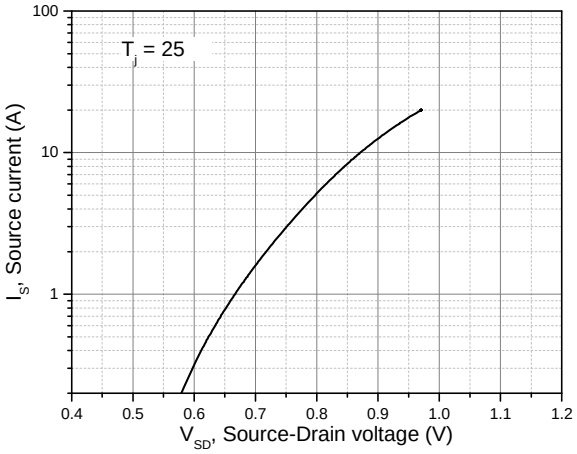
Total gate charge	Q_g		37.1		nC	V_{GS}=10 V, V_{DS}=400 V, I_D=16 A
Gate-source charge	Q_{gs}		11		nC	
Gate-drain charge	Q_{gd}		13.8		nC	
Gate plateau voltage	$V_{plateau}$		6.7		V	

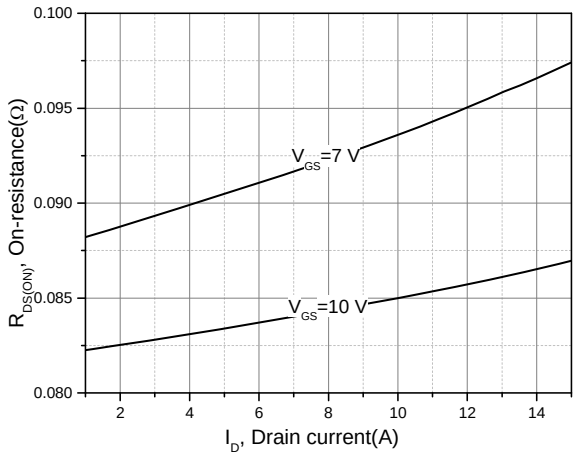
Diode forward voltage	V_{SD}			1.4	V	I_S=30 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		123		ns	I_S=16 A, di/dt=100 A/μs
Reverse recovery charge	Q_{rr}		0.73		uC	
Peak reverse recovery current	I_{rrm}		11		A	

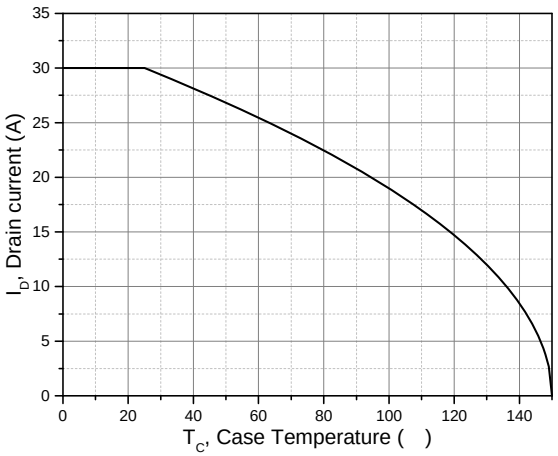
1) Calculated continuous current based on maximum allowable junction temperature.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) Pd is based on max. junction temperature, using junction-case thermal resistance.
4) The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 °C.
5) V_{DD}=100 V, V_{GS}=10 V, L=60 mH, starting T_j=25 °C.

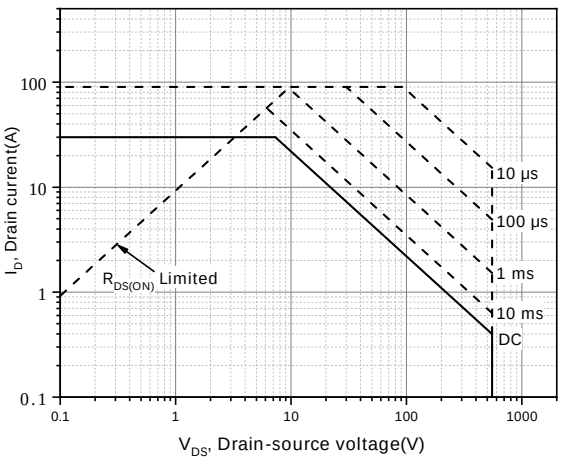


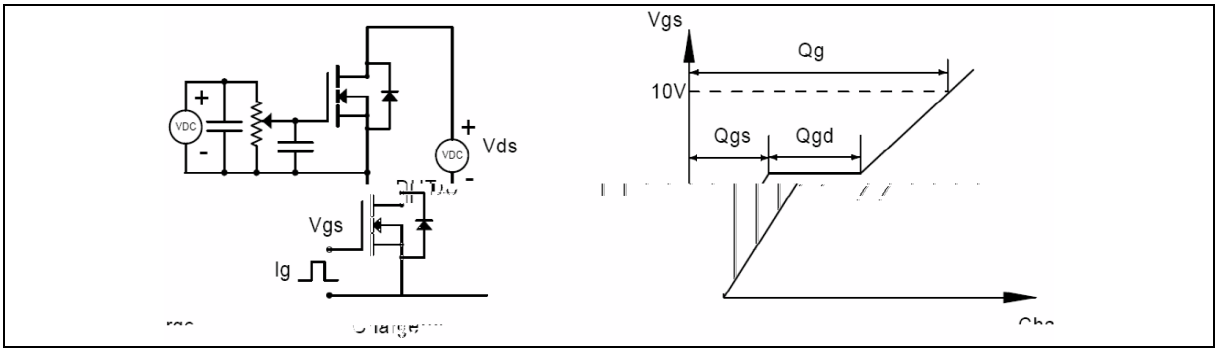

I_D = 1 mA
V_{th}, Threshold voltage (V)
T_j, Junction Temperature ( )

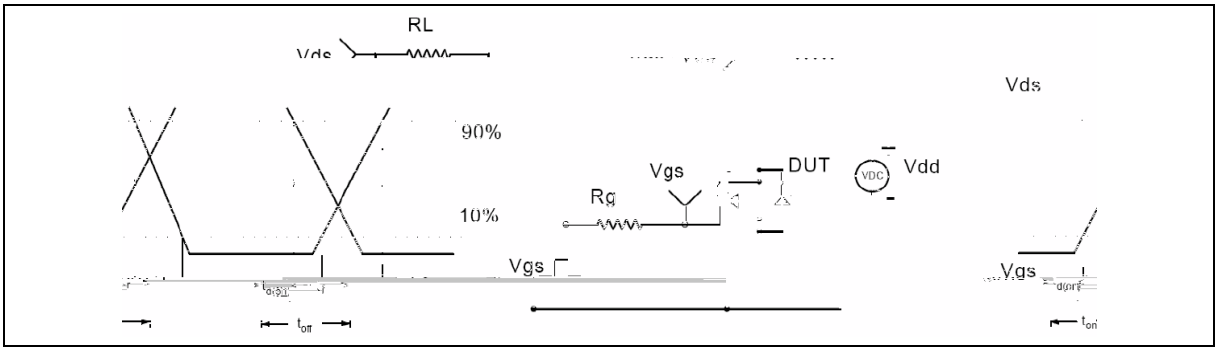

T_j = 25
I_S, Source current (A)
V_{SD}, Source-Drain voltage (V)

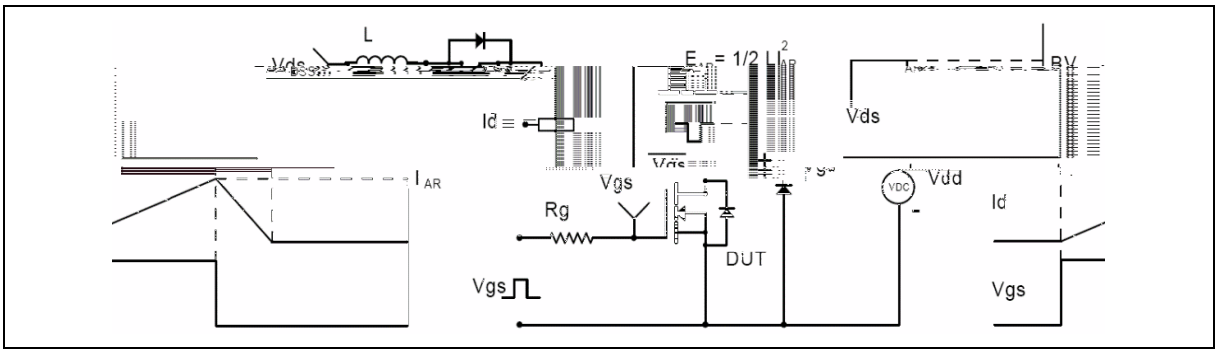

V_{GS}=7 V
V_{GS}=10 V
$R_{DS(ON)}$, On-resistance(Ω)
I_D, Drain current(A)

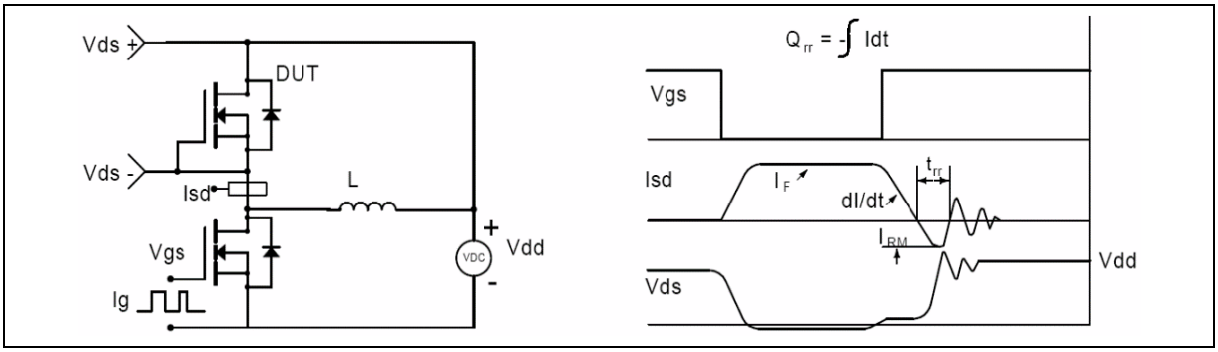

I_D, Drain current (A)
T_C, Case Temperature ( )


10 µs
100 µs
1 ms
10 ms
DC
$R_{DS(ON)}$ Limited
I_D, Drain current(A)
V_{DS}, Drain-source voltage(V)


VDC
Vds
Vgs
Ig
Vgs
Qg
10V
Qgs
Qgd


RL
90%
10%
Vgs
DUT
Rg
VDC
Vdd
Vds
Vgs
Vgs
t_{on}
t_{off}


L
Id
I_{AR}
Vgs
Rg
DUT
Vgs
$E_{AR} = 1/2\ LI_{AR}^2$
BV
Vds
VDC
Vdd
Id
Vgs


Vds +
DUT
Vds -
Isd
L
Vgs
Ig
VDC
Vdd
$Q_{rr} = \int Idt$
Vgs
Isd
I_F
dI/dt
t_{rr}
I_{RM}
Vds
Vdd

Symbol	mm

TO263-C	800	1	800	5	4000

OSG55R108KZF	TO263	yes	yes	yes

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