The GreèenZMOsSeries is integradlete (dFRwDi)tht of amsitn irmeiczoev errreyvedris
time. It is suitable for reshoingahnetr sewfifticchiienngc yt,o phoilgohgeire
smaller form factor.

Features

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

Applications

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

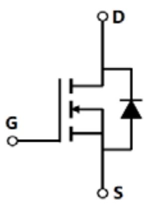
Key Performance Parameters

Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	650	V
$I_{D,\ pulse}$	108	A
$R_{DS(ON),\ max}$ @ V_{GS}=10V	99	mΩ
Q_g	66.8	nC

Marking Information

Product Name	Package	Marking
OSG60R099HSZF	TO247	OSG60R099HSZ

Package & Pin Information



Absol[redacted]**Ratings** at T_j=25°C unless otherwise noted

[redacted]	S[redacted]	[redacted]	[redacted]nit
[redacted]e voltage	V_{GS}	±30	[redacted]

Ct5°a= Ŵ 3 Rs B ϴ© [redacted] - M ʔ m ʞ .ᴀ

[redacted]

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		3917.5		pF	V_{GS}=0 V, V_{DS}=50 V, f=100 KHz
Output capacitance	C_{oss}		203.3		pF	
Reverse transfer capacitance	C_{rss}		9.0		pF	
Turn-on delay time	$t_{d(on)}$		48.3		ns	V_{GS}=10 V, V_{DS}=400 V, R_G=2 Ω, I_D=20 A
Rise time	t_r		77.0		ns	
Turn-off delay time	$t_{d(off)}$		90.9		ns	
Fall time	t_f		4.6		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		66.8		nC	V_{GS}=10 V, V_{DS}=400 V, I_D=20 A
Gate-source charge	Q_{gs}		16.6		nC	
Gate-drain charge	Q_{gd}		28.7		nC	
Gate plateau voltage	$V_{plateau}$		6.7		V	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	V_{SD}			1.4	V	I_S=36 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		146.5		ns	I_S=20 A, di/dt=100 A/μs
Reverse recovery charge	Q_{rr}		1.0		uC	
Peak reverse recovery current	I_{rrm}		12.8		A	

Note

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 t

Electrical Characteristics Diagrams

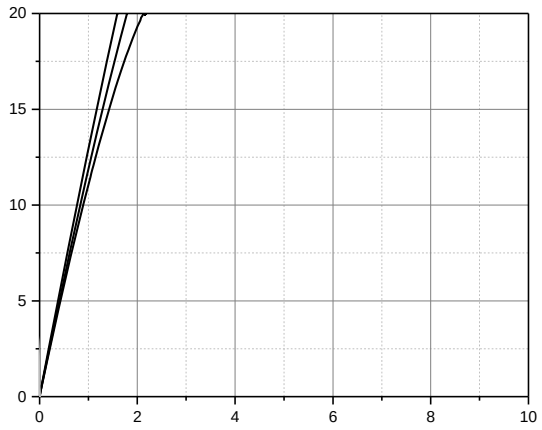


Figure 1. Typ. output characteristics

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

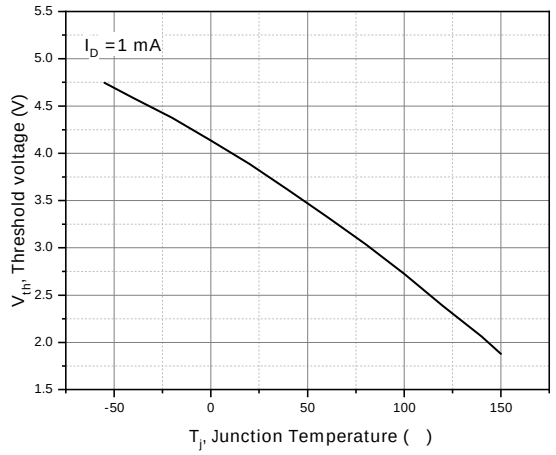


Figure 7. Threshold voltage

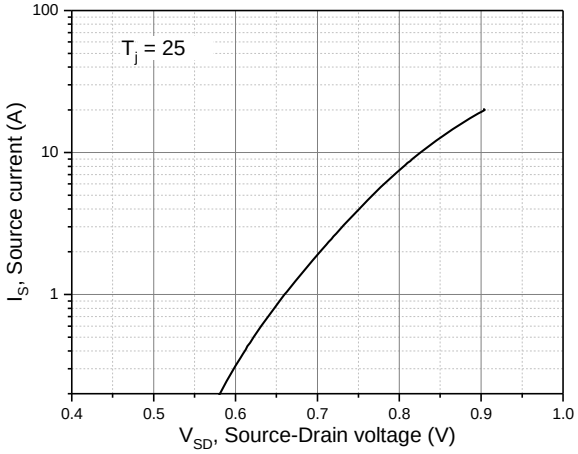


Figure 8. Forward characteristic of body diode

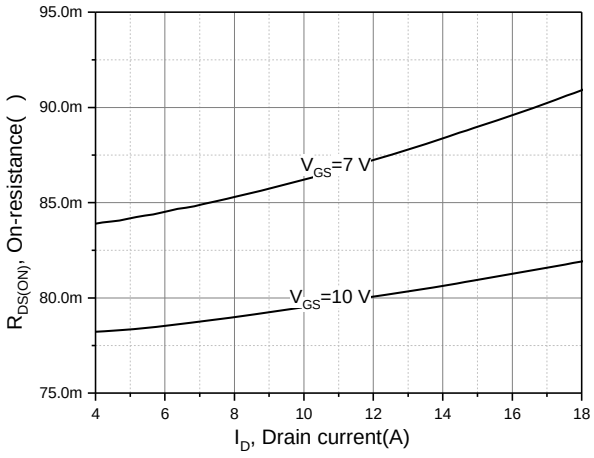


Figure 9. Drain-source on-state resistance

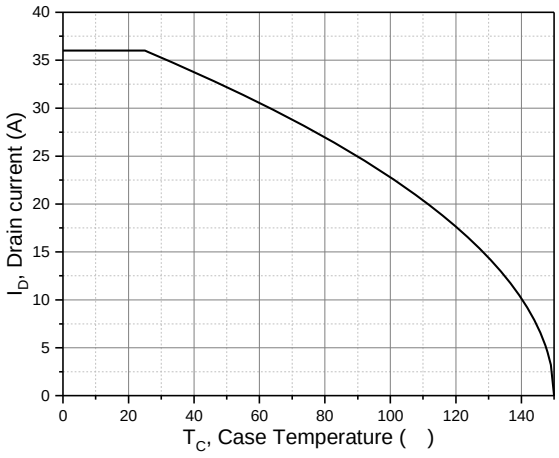


Figure 10. Drain current

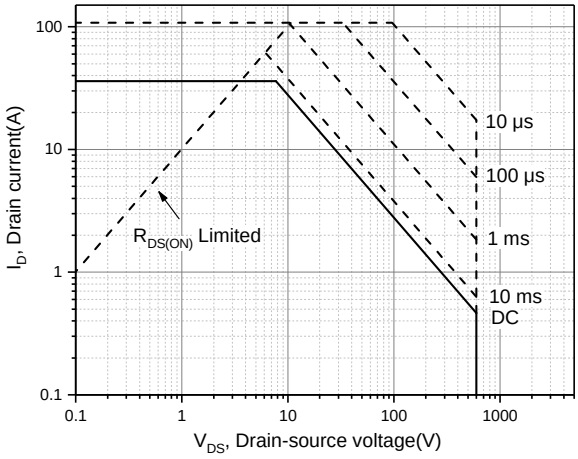


Figure 11. Safe operation area for TC=25

Test circuits and waveforms

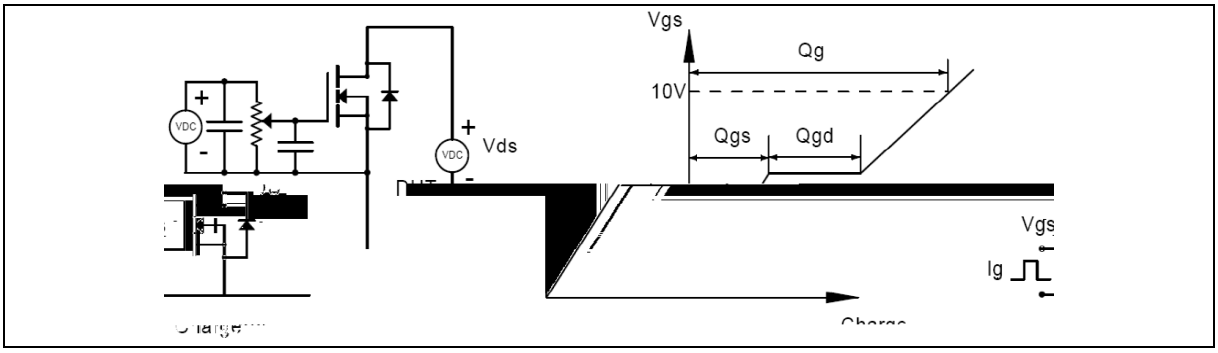


Figure 1. Gate charge test circuit & waveform

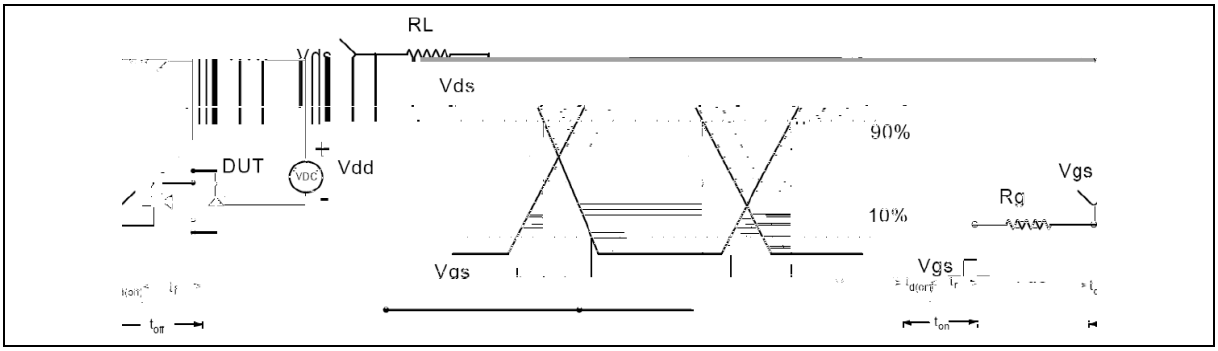


Figure 2. Switching time test circuit & waveforms

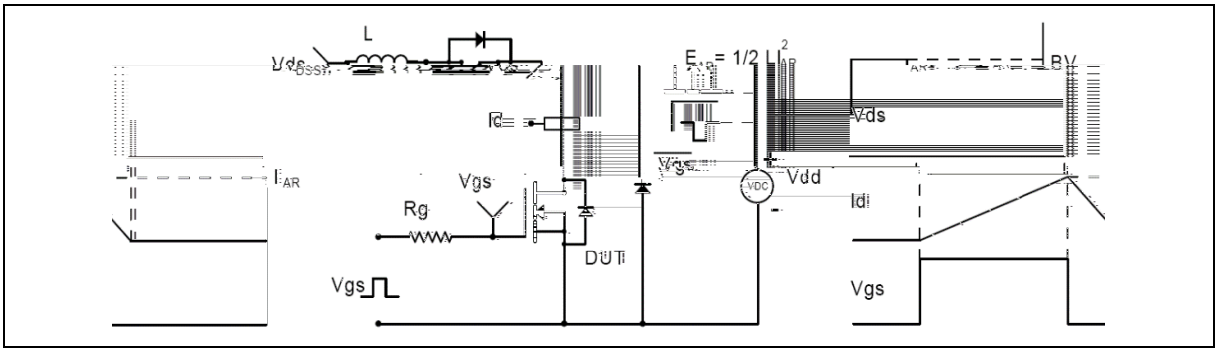


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

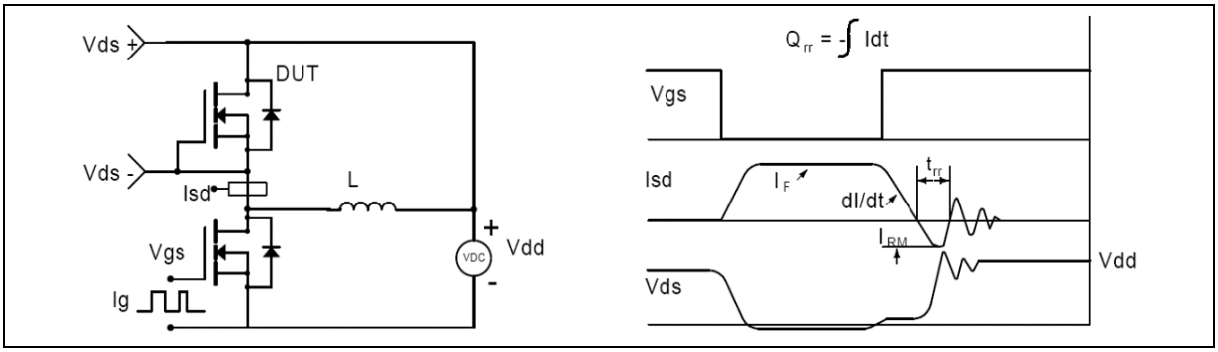
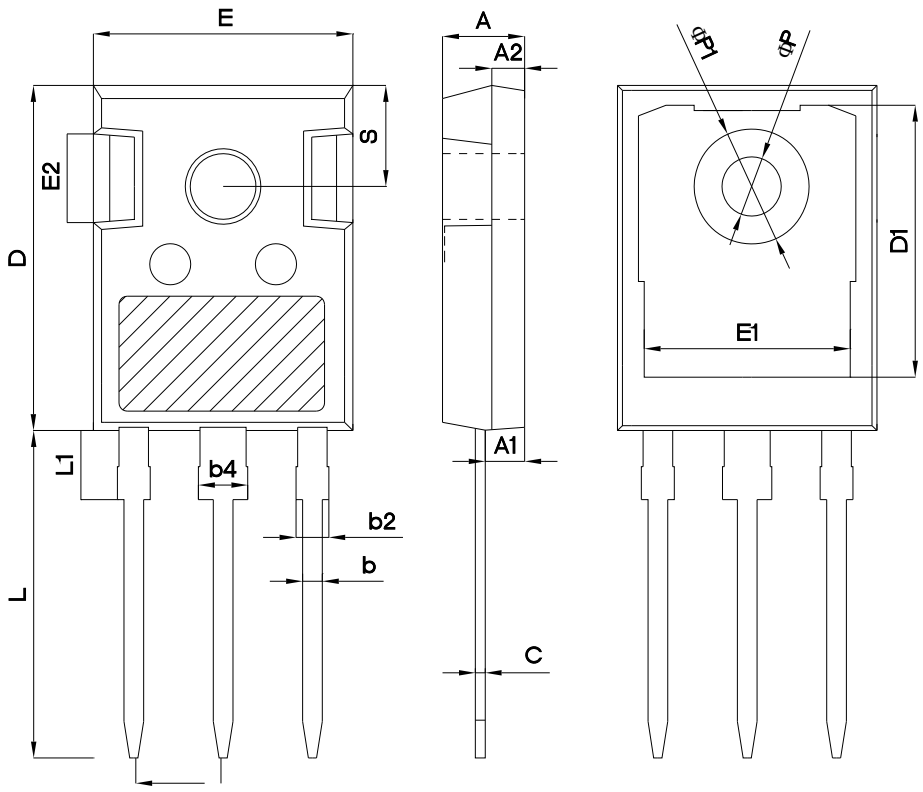


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.80	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	5.44BSC		
L	19.82	19.92	20.22
L1	-	-	4.30
ΦP	3.40	3.60	3.80
ΦP1	-	-	7.30
S	6.15BSC		

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

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG60R099HSZF	TO247	yes	yes	yes

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