Absolute Maximum Ratings at T_j=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	600	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	5	A
Continuous drain current[1], T_C=100 °C		3.2	
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	15	A
Continuous diode forward current[1], T_C=25 °C	I_S	5	A
Diode pulsed current[2], T_C=25 °C	$I_{S, pulse}$	15	A
Power dissipation[3], T_C=25 °C	P_D	37	W
Single pulsed avalanche energy[5]	E_{AS}	130	mJ
MOSFET dv/dt ruggedness, V_{DS}	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS} SD D	dv/dt	15	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	3.4	°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}	600			V	V_{GS}=0 V, I_D=250 A
		650	716			V_{GS}=0 V, I_D , T_j=150 °C
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	V_{DS}=V_{GS}, I_D=250 A
Drain-source on-state resistance	$R_{DS(ON)}$		0.66	0.90		V_{GS}=10 V, I_D=3 A
			1.6			V_{GS}=10 V, I_D=3 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}			1	A	V_{DS}=600 V, V_{GS}=0 V

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		354.2		pF	V_{GS}=0 V, V_{DS}=50 V, Hz
Output capacitance	C_{oss}		31.4		pF	
Reverse transfer capacitance	C_{rss}		1.54		pF	

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

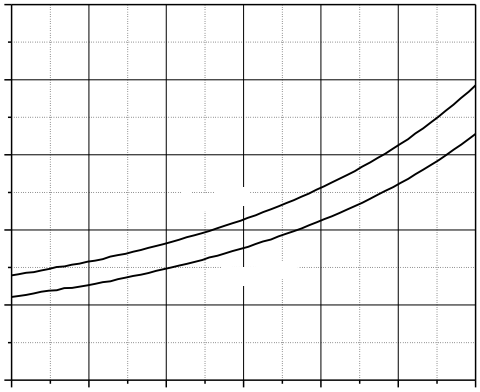


Figure 8. Drain-source on-state resistance

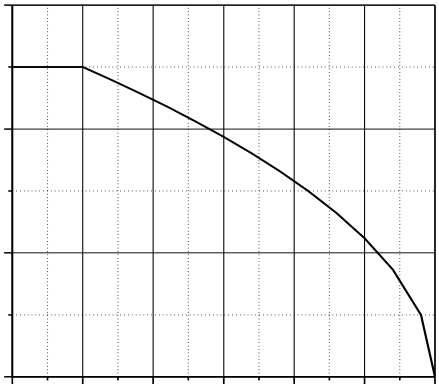


Figure 9. Drain current

Figure 10. Safe operation area T_C=25 °C

Test circuits and waveforms

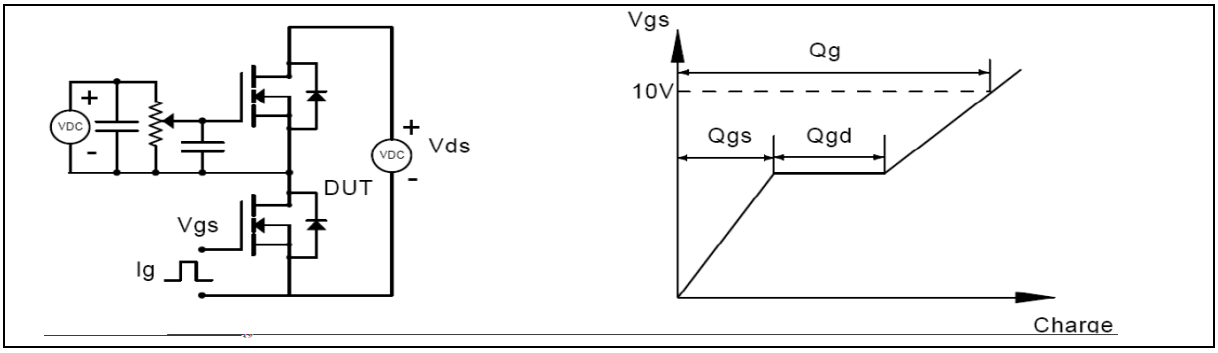


Figure 1. Gate charge test circuit & waveform

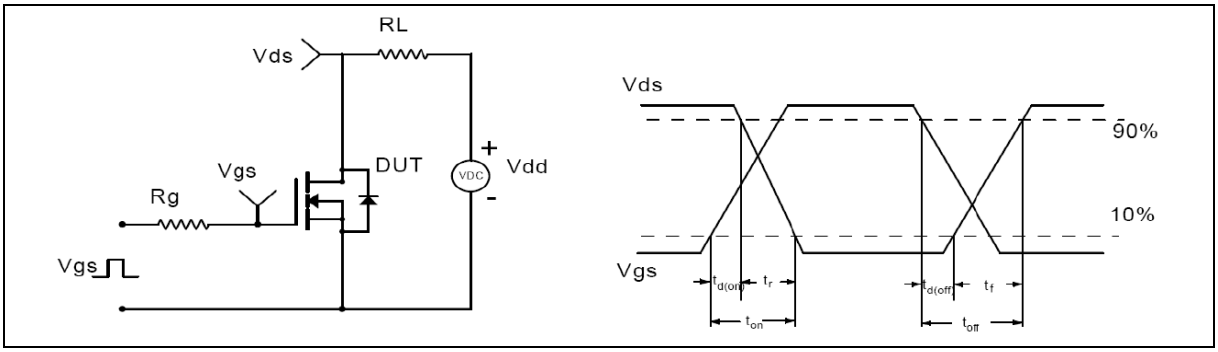


Figure 2. Switching time test circuit & waveforms

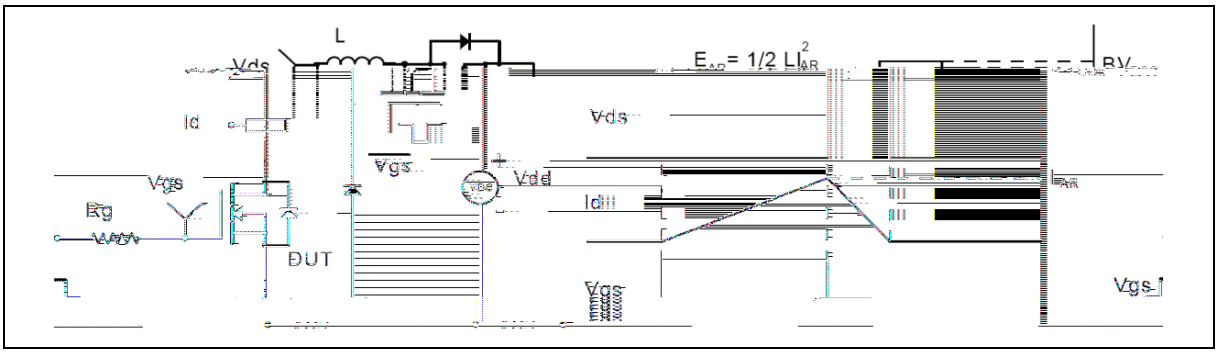


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

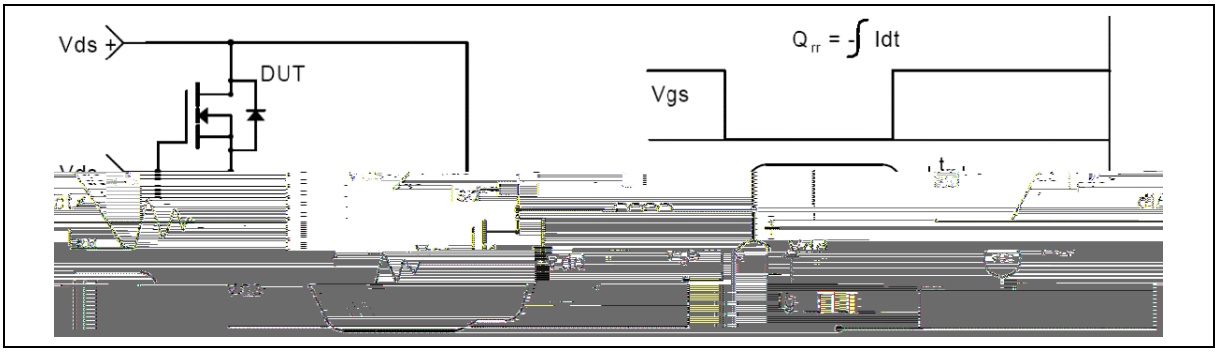
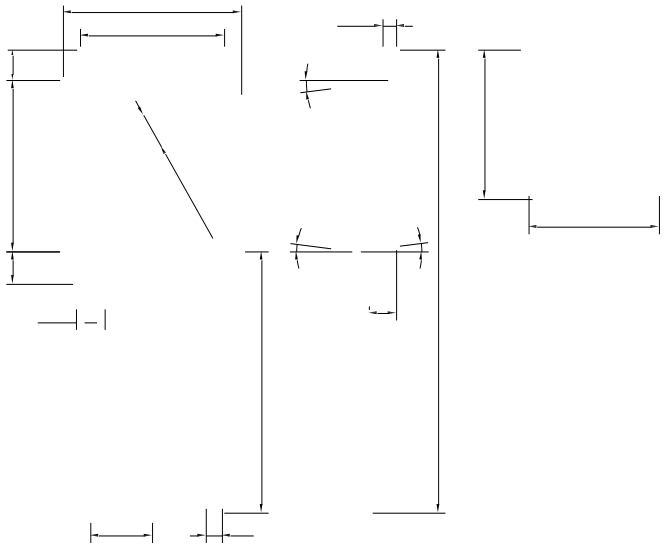


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information

Symbol	mm		
	Min	Nom	Max
A	2.20	2.30	2.40
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b2	0.00	0.04	0.10
	0.00	0.04	0.10
b3	5.20	5.33	5.50
c	0.43	0.53	0.63
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.80
E1	4.63	-	-
e	2.286BSC		
H			

Package Information



Symbol	mm		
	Min	Nom	Max
A	2.20	2.30	2.35
A1	0.90	1.01	1.10
b	0.56	-	0.69
b1	0.55	0.60	0.65
b2	0.77	-	0.90
b3	0.76	0.81	0.86
b4	5.23	5.33	5.43
b5	-	-	1.05
c	0.46	-	0.59
c1	0.45	0.51	0.55
c2	0.46	-	0.59
D	6.00	6.10	6.20
D1	5.20	-	-
E	6.50	6.60	6.70
E1	4.60	4.83	5.00
e	2.24	2.29	2.34
e1	4.47	4.57	4.67
H	16.18	16.48	16.78
L	9.00	9.30	9.60
L1	0.95	1.16	1.35
L2	0.90	1.08	1.25
	3	5	7
	1	3	5

Version2: TO251-J package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO251-C	75	66	4950	6	29700
TO251-J	75	60	4500	5	22500

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG60R900AF	TO251	yes	yes	yes