Absolute Maximum Ratings at T_j=25°C 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	8	A
Continuous drain current[1], T_C=100 °C		5	
Pulsed drain current[2], T_C=25 °C	$I_{D,\ pulse}$	24	A
Continuous diode forward current[1], T_C=25 °C	I_S	8	A
Diode pulsed current[2], T_C=25 °C	$I_{S,\ pulse}$	24	A
Power dissipation[3], T_C=25 °C	P_D	63	W
Single pulsed avalanche energy[5]	E_{AS}	150	mJ
MOSFET dv/dt ruggedness, V_{DS}=0…480 V	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS}=0…480 V, $I_{SD} \le I_D$	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	$R_{\theta JC}$	2	°C/W
Thermal resistance, junction-ambient[4]	$R_{\theta JA}$	62	°C/W

Electrical Characteristics at T_j=25°C 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 μA
		650	716			V_{GS}=0 V, I_D=250 μA, T_j=150 °C
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	V_{DS}=V_{GS}, I_D=250 μA
Drain-source on-state resistance	$R_{DS(ON)}$		0.50	0.58	Ω	V_{GS}=10 V, I_D=4 A
			1.27			V_{GS}=10 V, I_D=4 A, T_j=150 °C

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		464		pF	V_{GS}=0 V, V_{DS}=50 V, f=1 MHz
Output capacitance	C_{oss}		38.3		pF	
Reverse transfer capacitance	C_{rss}		1.47		pF	

Turn-

Electrical Characteristics Diagrams

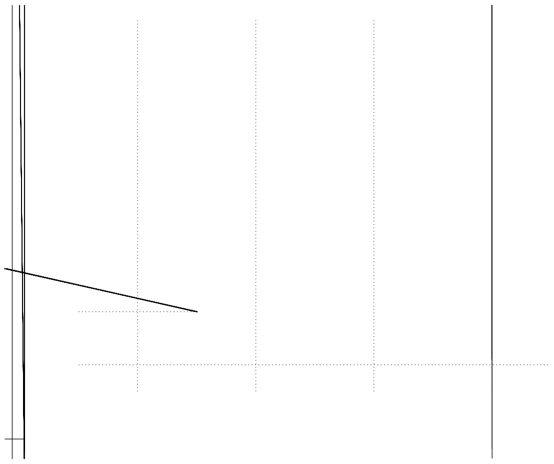


Figure 1. Typ. output characteristics

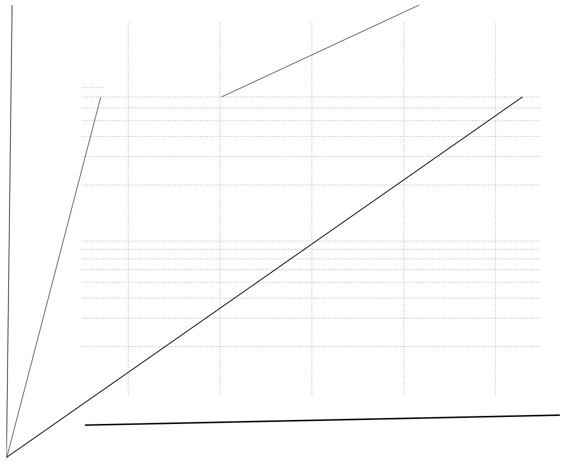


Figure 2. Typ. transfer characteristics

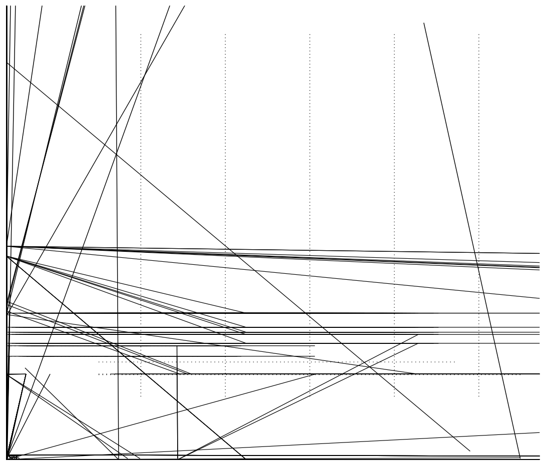


Figure 3. Typ. capacitances

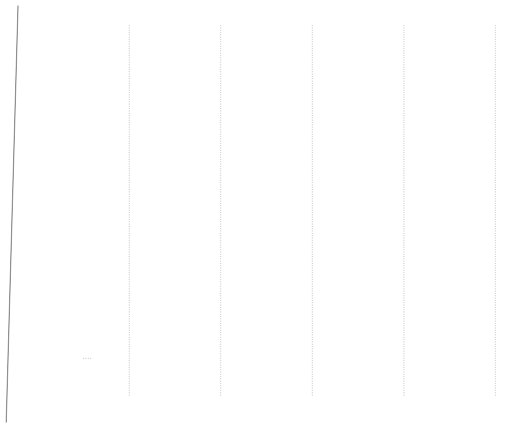


Figure 4. Typ. gate charge

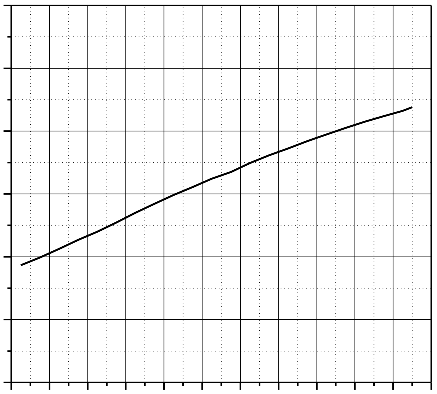
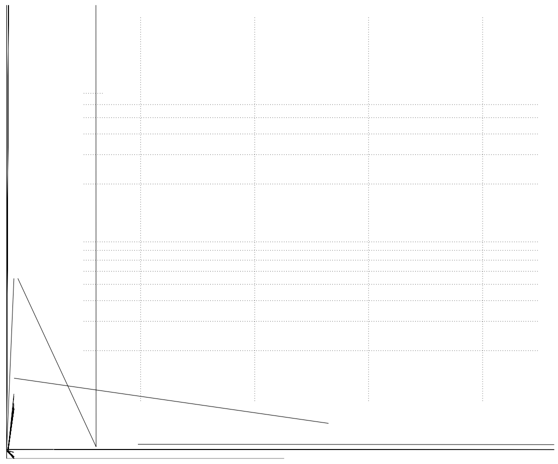
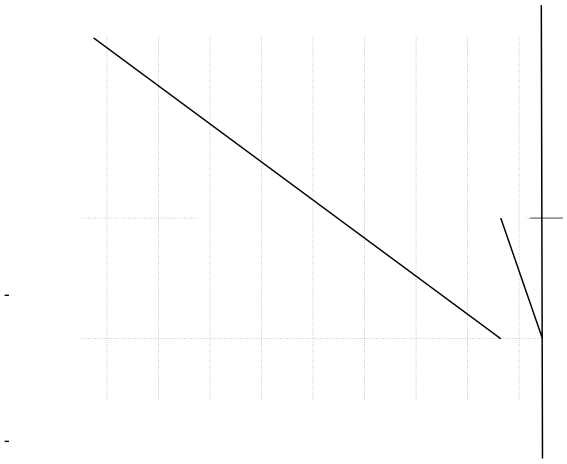
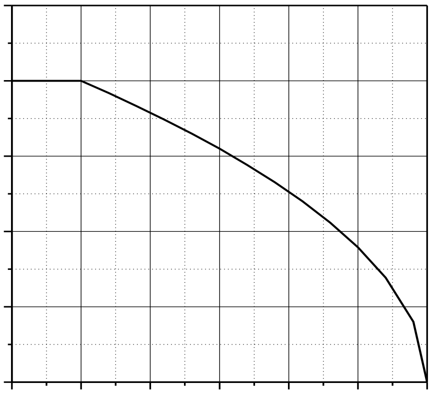


Figure 5. Drain-source breakdown voltage

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

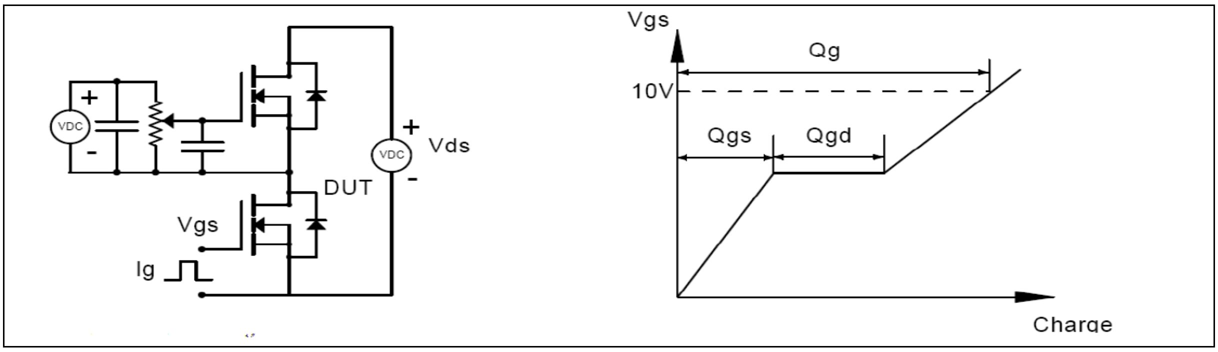


Figure 1. Gate charge test circuit & waveform

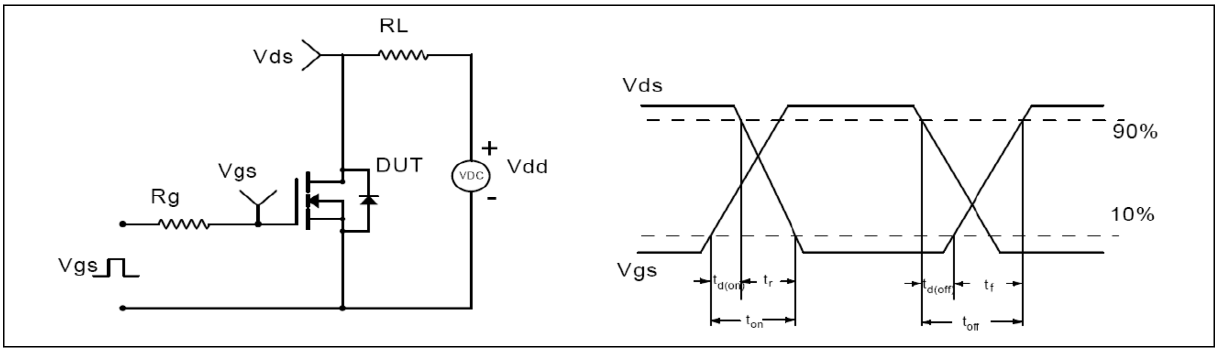


Figure 2. Switching time test circuit & waveforms

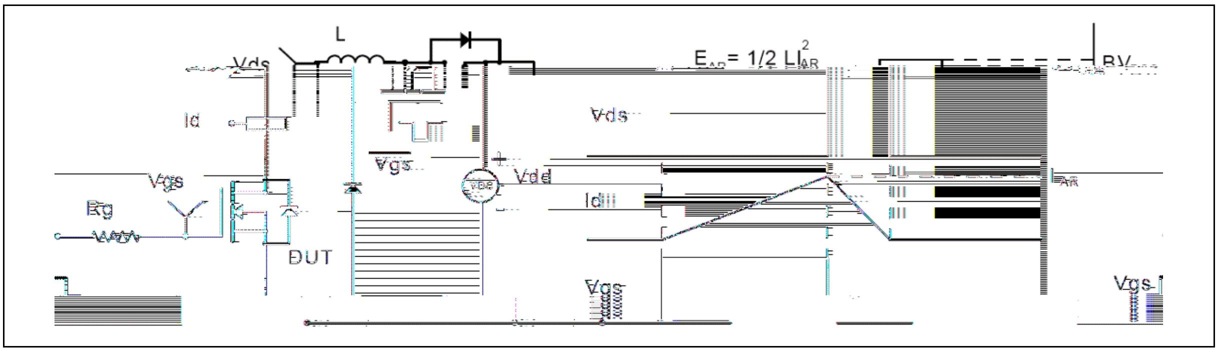


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

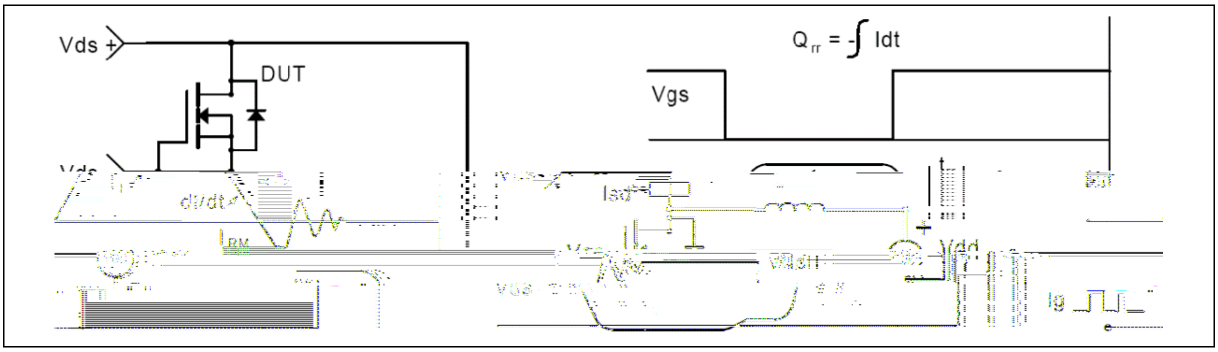
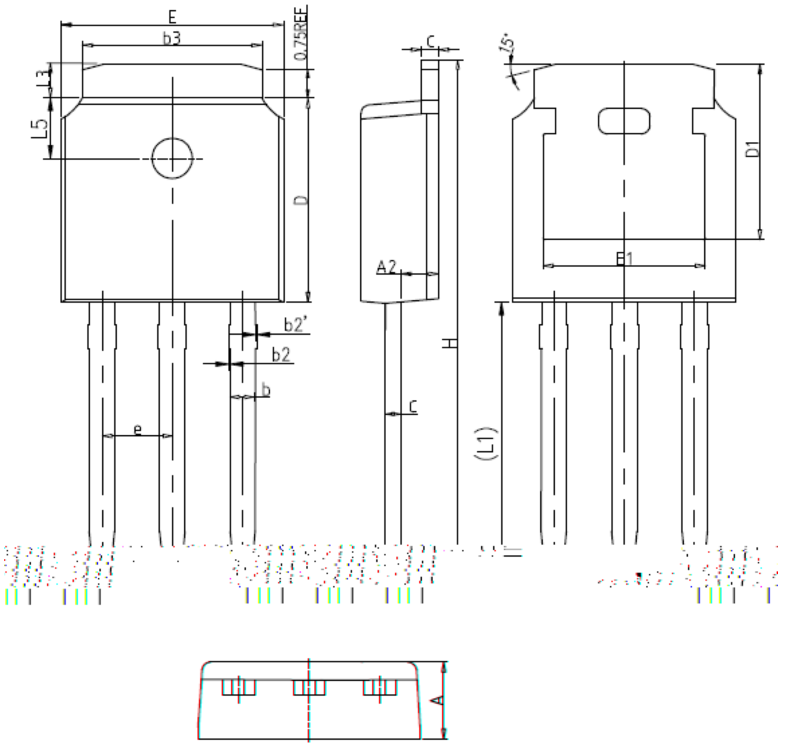


Figure 4. Diode reverse recovery test circuit & waveforms

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
b2'	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	16.22	16.52	16.82
L1	9.15	9.40	9.65
L3	0.88	1.02	1.28
L5	1.65	1.80	1.95

Version1: TO251-C package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes / Inner Box	Units/ Inner Box	Inner Box/ Carton Box	Units/ Carton Box
TO251-C	75	66	4950	6	29700

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG60R580AF	TO251	yes	yes	yes

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