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	40	A
Continuous drain current[1)], T_C=100 °C		25	
Pulsed drain current[2)], T_C=25 °C	$I_{D,\ pulse}$	120	A
Continuous diode forward current[1)], T_C=25 °C	I_S	40	A
Diode pulsed current[2)], T_C=25 °C	$I_{S,\ pulse}$	120	A
Power dissipation[3)], T_C=25 °C	P_D	261	W
Single pulsed avalanche energy[5)]	E_{AS}	793.6	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	0.48	°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=1 mA
		650				V_{GS}=0 V, I_D=1 mA, T_j=150 °C
Gate threshold voltage	$V_{GS(th)}$	3.0		4.0	V	V_{DS}=V_{GS}, I_D=1 mA
Drain-source on-state resistance	$R_{DS(ON)}$		0.085	0.096		

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		3190.3		pF	V_{GS}=0 V, V_{DS}=50 V, 00 KHz
Output capacitance	C_{oss}		280.1		pF	
Reverse transfer capacitance	C_{rss}		1.69		pF	
Turn-on delay time	$t_{d(on)}$		36.8		ns	V_{GS}=10 V, V_{DS}=400 V, R_G I_D=20 A

Electrical Characteristics Diagrams

Figure 1. Typ. output characteristics

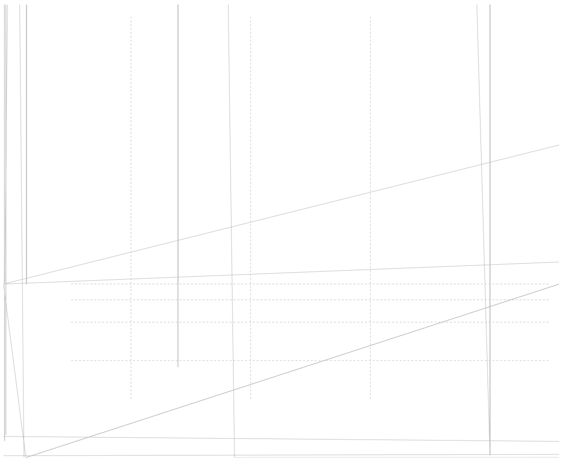

Figure 2. Typ. transfer characteristics

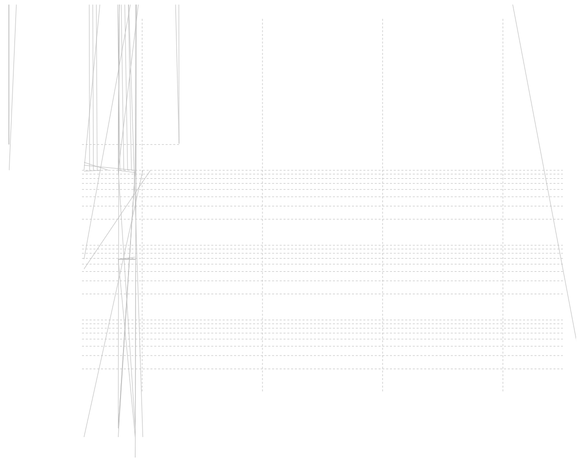

Figure 3. Typ. capacitances

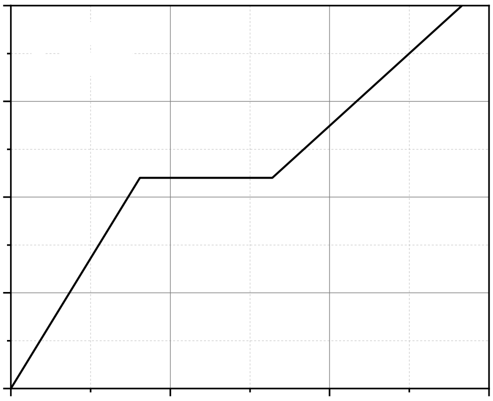

Figure 4. Typ. gate charge

Figure 5. Drain-source breakdown voltage

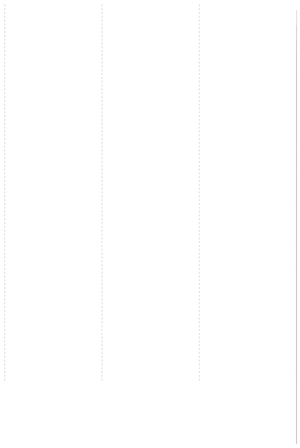

Figure 6. Drain-source on-state resistance

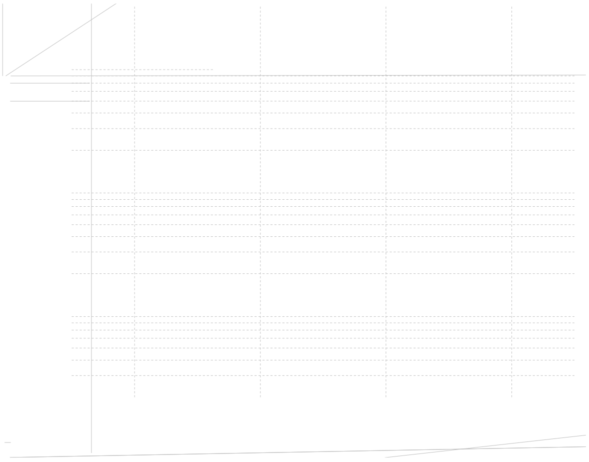

Figure 7. Forward characteristic of body diode

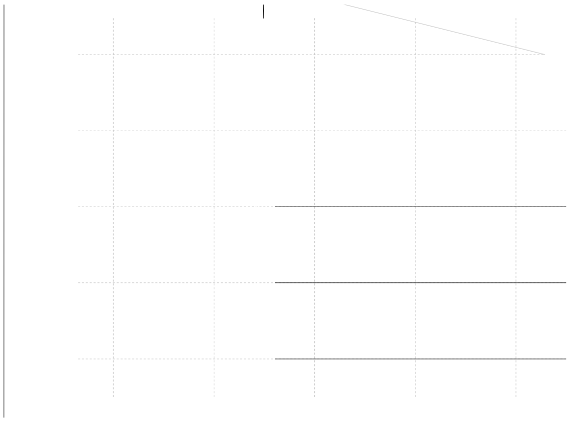

Figure 8. Drain-source on-state resistance

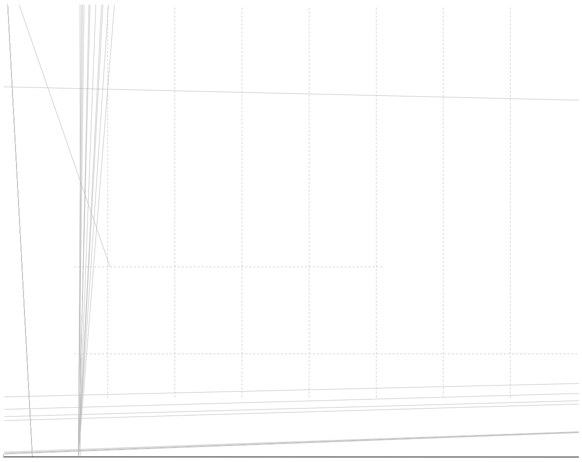

Figure 9. Drain current

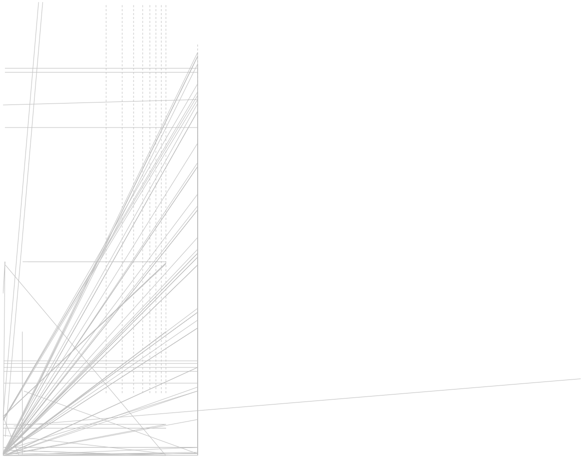

Figure 10. Safe operation area T_C=25 °C

Test circuits and waveforms

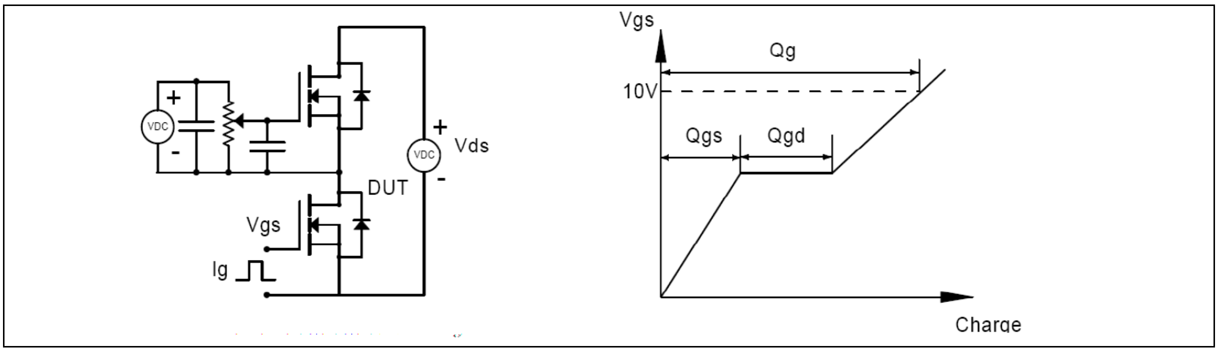

Figure 1. Gate charge test circuit & waveform

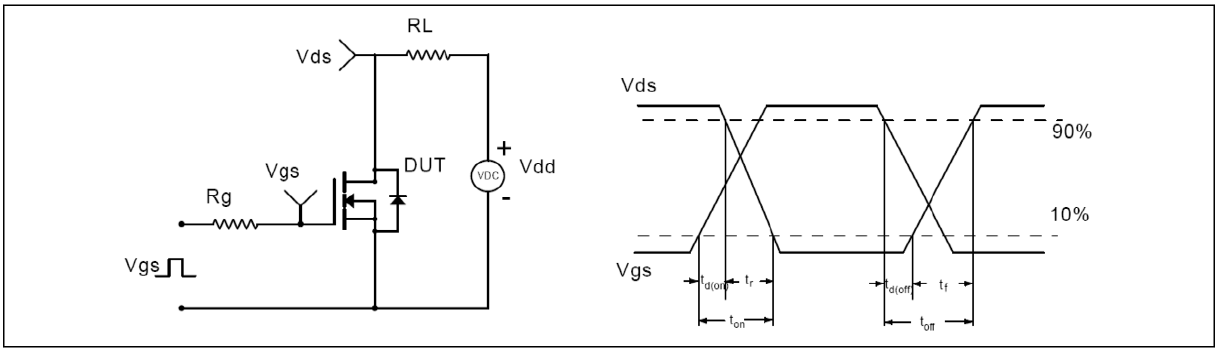

Figure 2. Switching time test circuit & waveforms

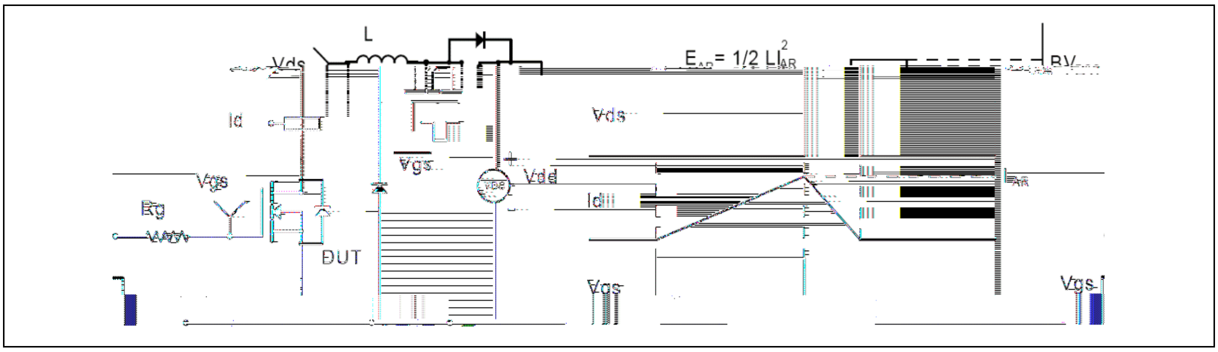

Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

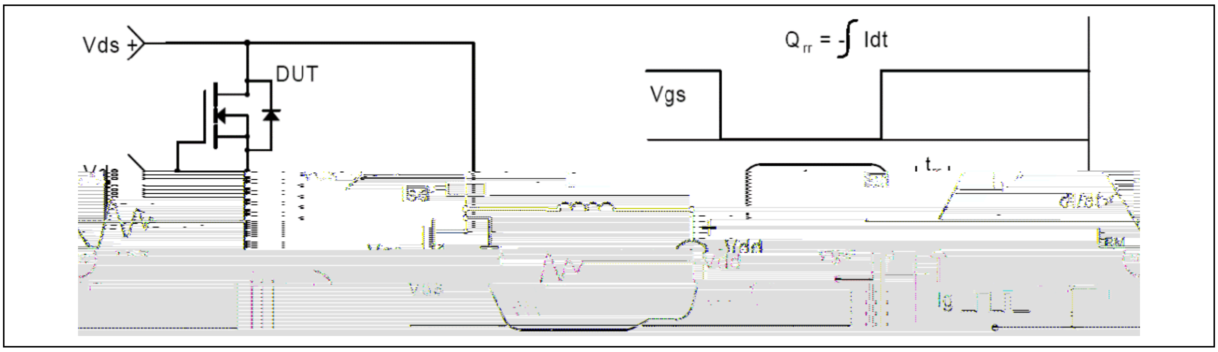

Figure 4. Diode reverse recovery test circuit & waveforms

Ordering Information

Package Type	Units/ Reel	Reels / Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO263-J	800	1	800	10	8000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSG60R096KSF	TO263	yes	yes	yes

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