Absolute Maximum Ratings at T_j=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	700	V
Gate-source voltage	V_{GS}	±30	V
Continuous drain current[1], T_C=25 °C	I_D	12	A
Continuous drain current[1], T_C=100 °C		7.6	
Pulsed drain current[2], T_C=25 °C	$I_{D, pulse}$	36	A
Continuous diode forward current[1], T_C=25 °C	I_S	12	A
Diode pulsed current[2], T_C=25 °C	$I_{S, pulse}$	36	A
Power dissipation[3], T_C=25 °C	P_D	83	W
Single pulsed avalanche energy[5]	E_{AS}	160	[redacted]
MOSFET dv/dt ruggedness, V_{DS} 480 V	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS} 480 V, I_{SD} D	dv/dt	15	V/ns
Operation and storage temperature	T		

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		. . 3		pF	V_{GS}=0 V, V_{DS}=50 V, 00 kHz
Output capacitance	C_{oss}		61.6		pF	
Reverse transfer capacitance	C_{rss}		3.1		pF	
Turn-on delay time	$t_{d(on)}$		24.7		ns	V_{GS}=10 V, V_{DS}=400 V, R_G I_D=6 A
Rise time	t_r		28		ns	
Turn-off delay time	$t_{d(off)}$		44.2		ns	
Fall time	t_f		18.4		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		9.8		nC	V_{GS}=10 V, V_{DS}=400 V, I_D=6 A
Gate-source charge	Q_{gs}		4.5		nC	
Gate-drain charge	Q_{gd}		1.5		nC	
Gate plateau voltage	$V_{plateau}$		6.2		V	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	V_{SD}			1.3	V	I_S=12 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		251		ns	. , I_S=6 A, di/dt
Reverse recovery charge	Q_{rr}		2.4		C	
Peak reverse recovery current	I_{rrm}		19.1		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 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 BDC 0.000008871 0 595.32 841.92 reW*nBT/F3 9.96 Tf1 0 0 1 69.024 2360

Electrical Characteristics Diagrams

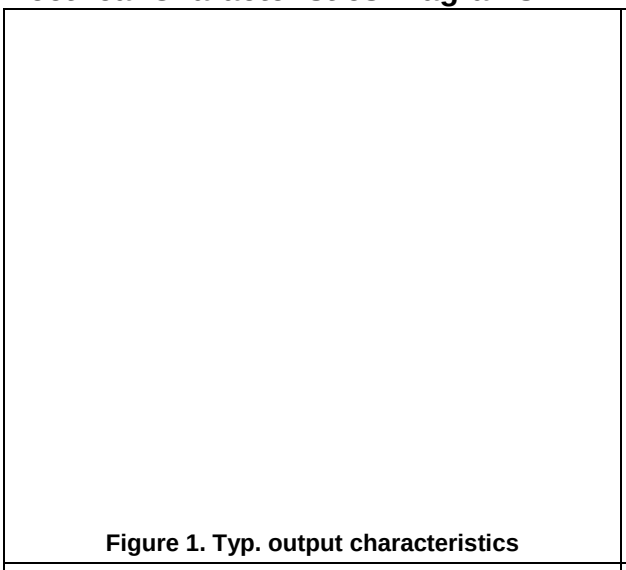


Figure 1. Typ. output characteristics

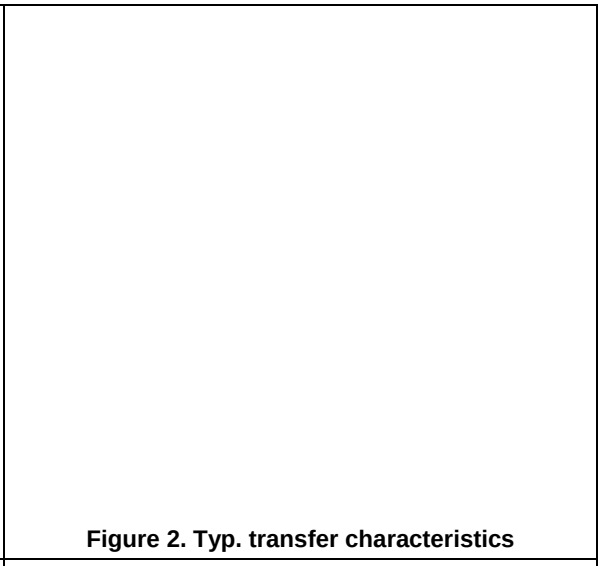


Figure 2. Typ. transfer characteristics

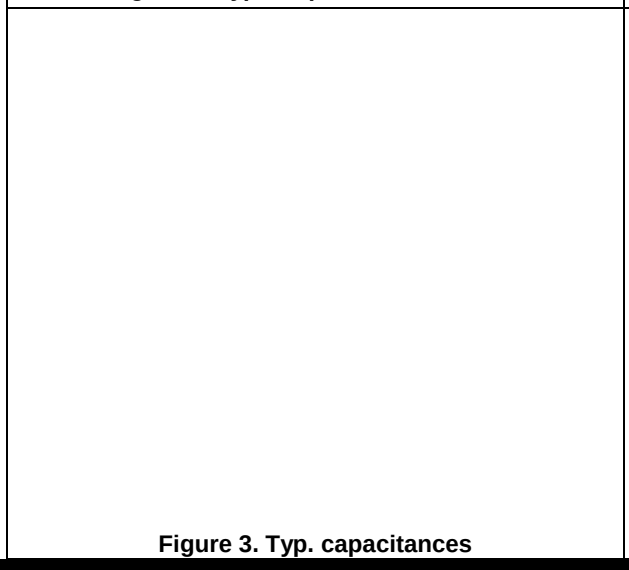


Figure 3. Typ. capacitances

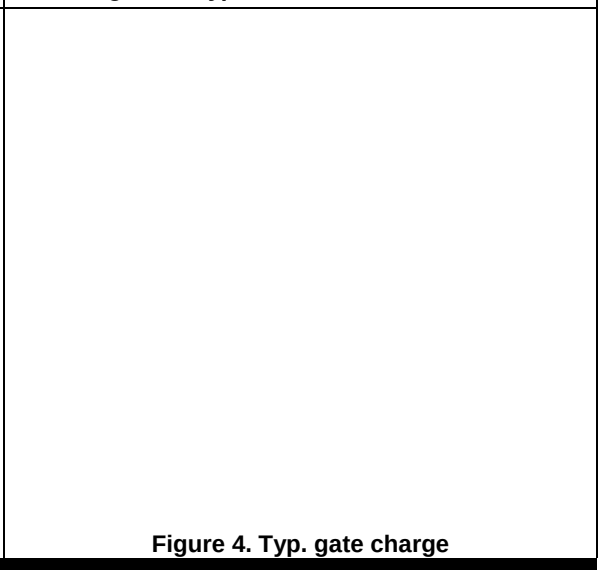


Figure 4. Typ. gate charge

Figure 7. Threshold voltage

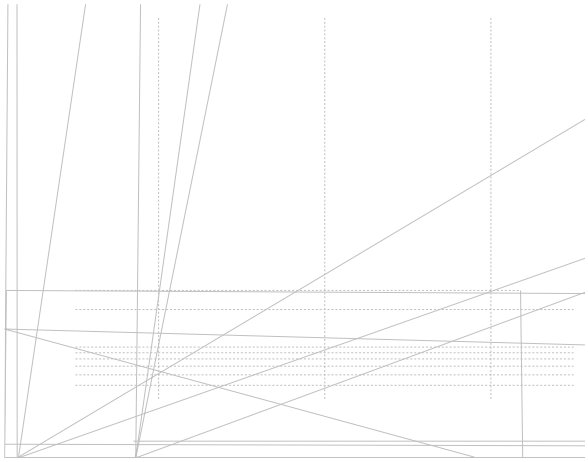


Figure 8. Forward characteristic of body diode

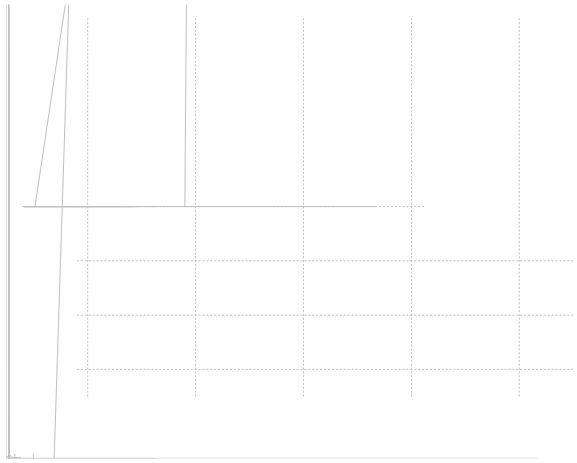


Figure 9. Drain-source on-state resistance

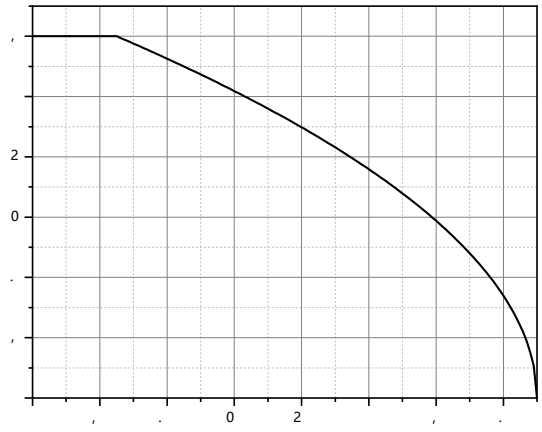


Figure 10. Drain current

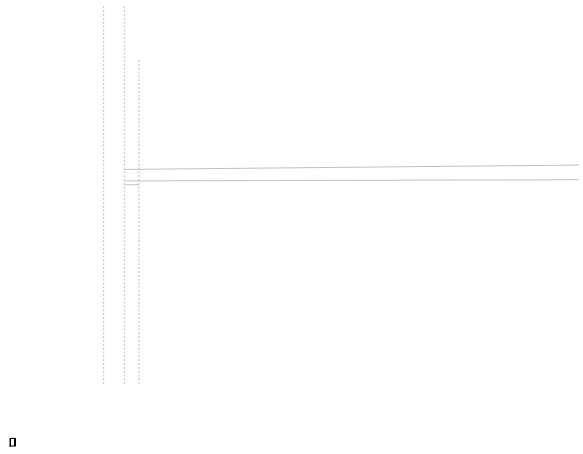


Figure 11. Safe operation area T_C=25 °C

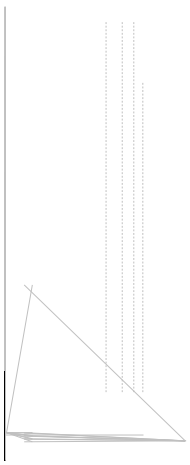


Figure 12. Max. transient thermal impedance

Test circuits and waveforms

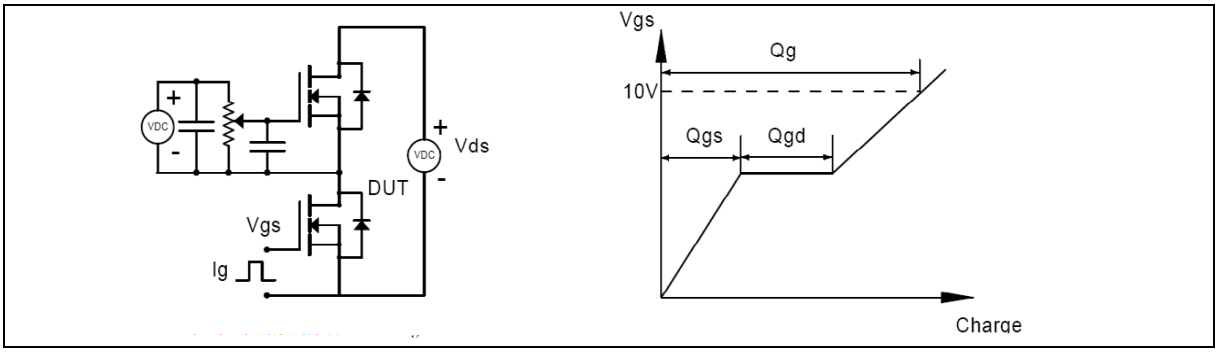


Figure 1. Gate charge test circuit & waveform

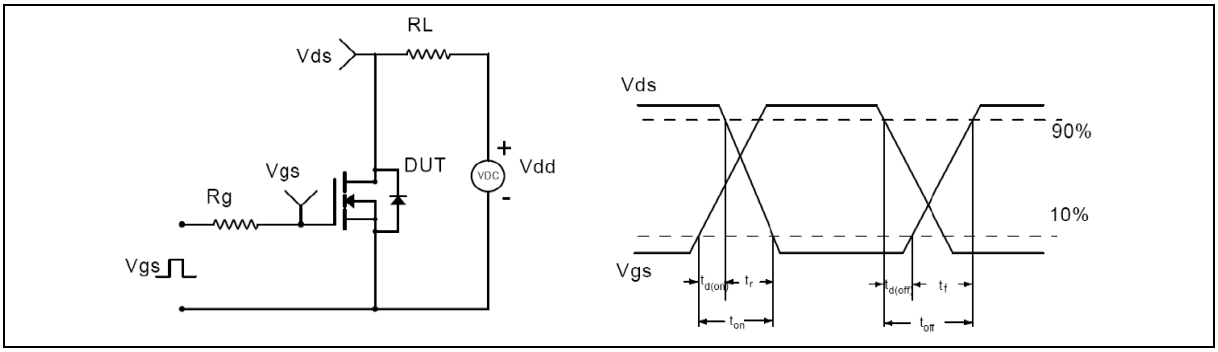


Figure 2. Switching time test circuit & waveforms

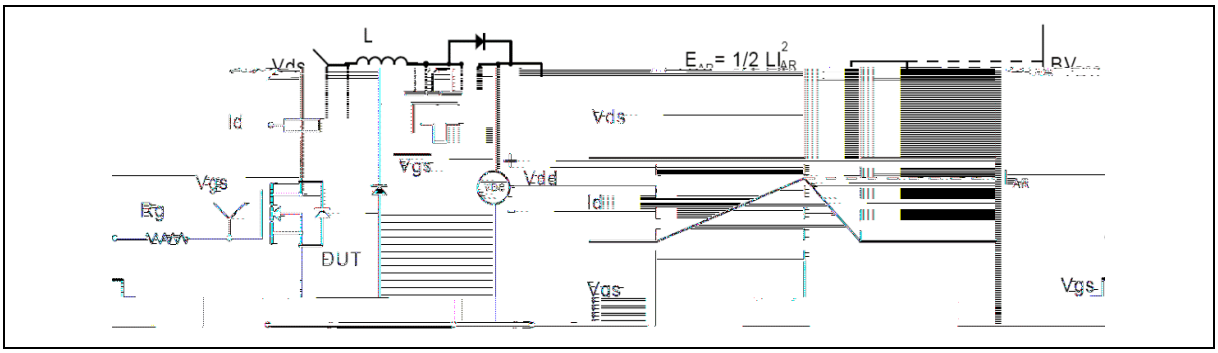
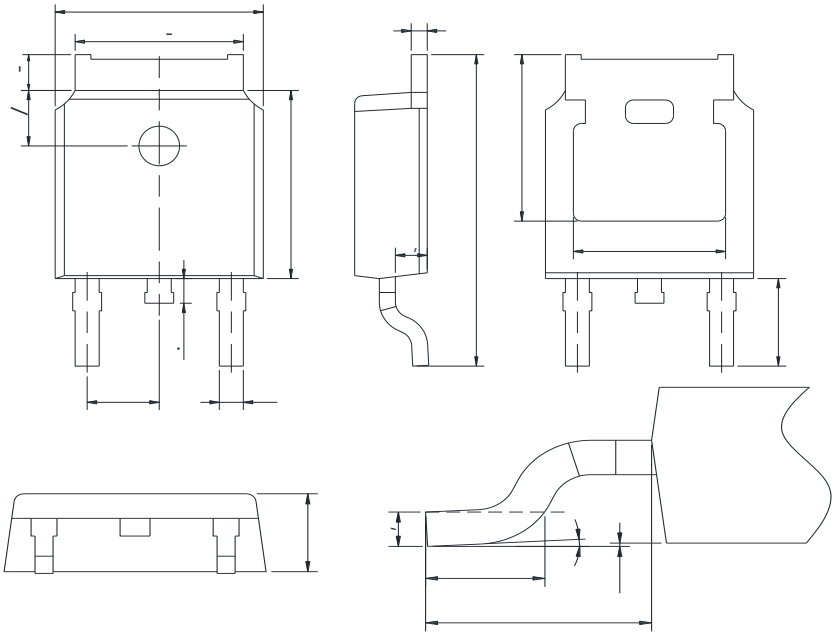


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	2.20	2.30	2.38
A1	0.00	-	0.20
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.73
E1	4.63	-	-
e	2.286BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88	-	1.28
L4	0.50	-	1.00
	0	-	

Version 1: TO252-C package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO252-C	2500	2	5000	5	25000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OSS70R350DF	TO252	yes	yes	yes