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RoHS compliant

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- Solar inverter
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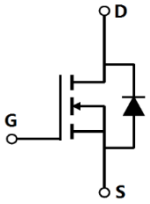
Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	80	V
$I_{D,\ pulse}$	390	A
$R_{DS(ON),\ max}$ @ V_{GS}=10V	4.5	
Q_g	101.6	nC

Product Name	Package	Marking
SFG130N08PF	TO220	SFG130N08P



Absolute Maximum Ratings at T_j=25 unless otherwise noted

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	80	V
Gate source voltage	V_{GS}	±20	V
Continuous drain current			

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		8681		pF	V_{GS}=0 V, V_{DS}=50 V, 1 MHz
Output capacitance	C_{oss}		6484		pF	
Reverse transfer capacitance	C_{rss}		8.55		pF	
Turn-on delay time	$t_{d(on)}$		28.2		ns	V_{GS}=10 V, V_{DS}=50 V, R_G=2.2 I_D=22 A
Rise time	t_r		7.5		ns	
Turn-off delay time	$t_{d(off)}$		81.9		ns	
Fall time	t_f		20.1		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		101.6		nC	V_{GS}=10 V, V_{DS}=50 V, I_D=22 A
Gate-source charge	Q_{gs}		20.6		nC	
Gate-drain charge	Q_{gd}		28.7		nC	
Gate plateau voltage	$V_{plateau}$		4.2		V	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	V_{SD}			1.3	V	I_S=20 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		82.1		ns	V_R=50 V, I_S=10 A,
Reverse recovery charge	Q_{rr}		248.4		nC	
Peak reverse recovery current	I_{rrm}		4.9		A	

Note

1) Calculated continuous current based on maximum allowable junction temperature.

Electrical Characteristics Diagrams

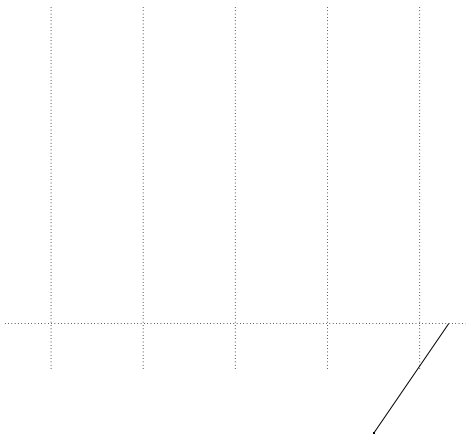


Figure 1. Typ. output characteristics

Figure 2. Typ. transfer characteristics

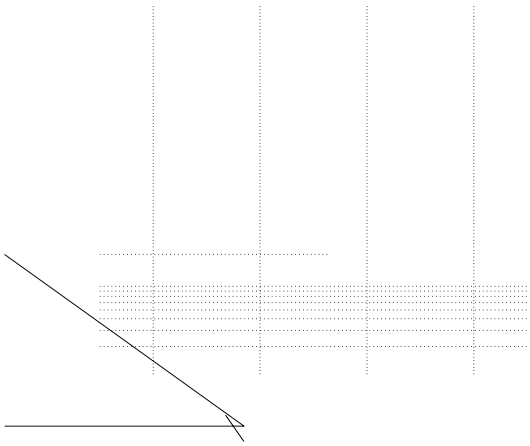


Figure 3. Typ. capacitances

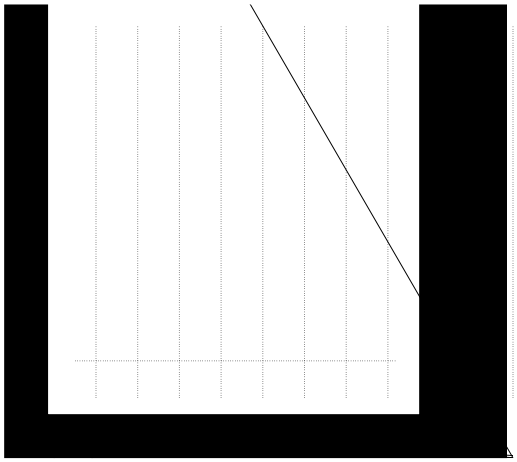


Figure 4. Typ. gate charge

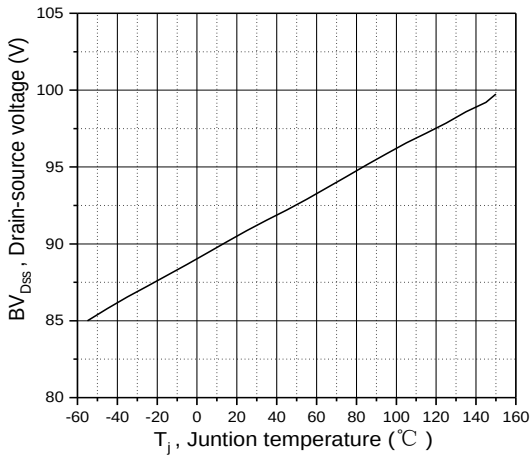


Figure 5. Drain-source breakdown voltage

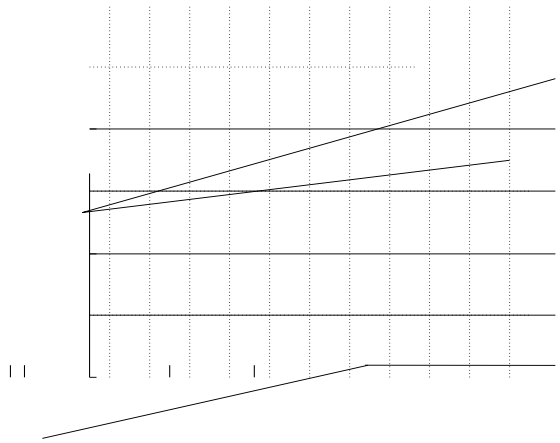


Figure 6. Drain-source on-state resistance

Test circuits and waveforms

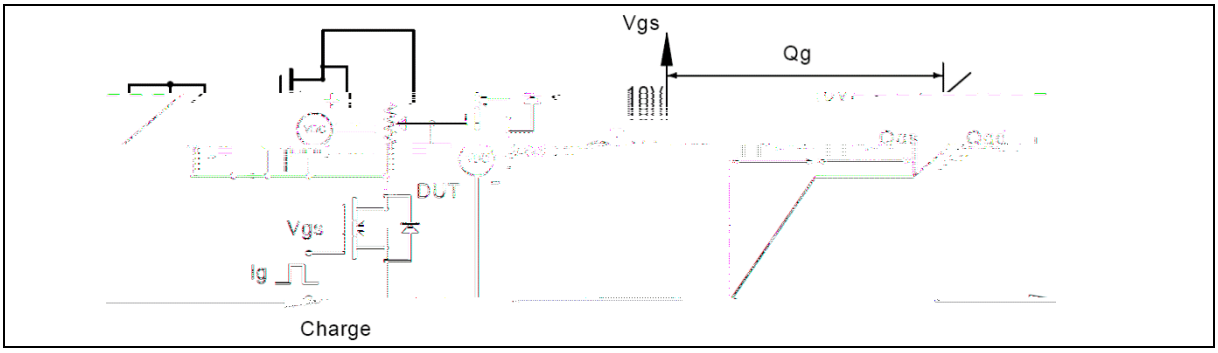


Figure 1. Gate charge test circuit & waveform

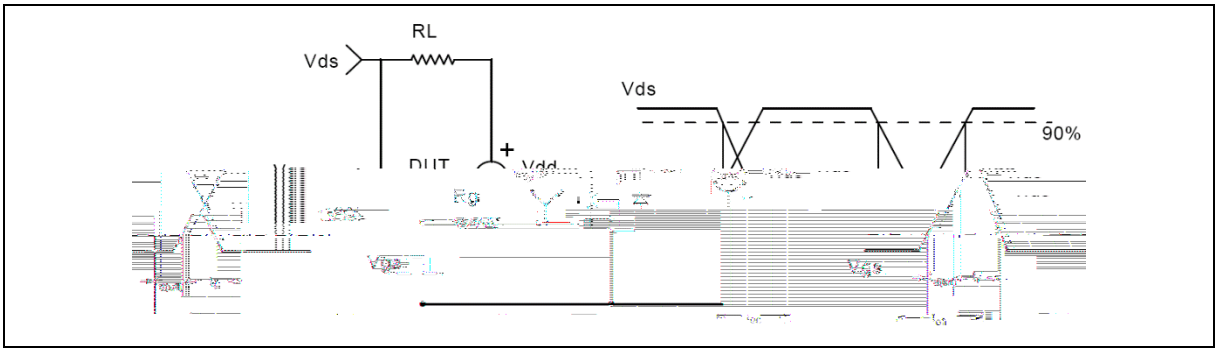


Figure 2. Switching time test circuit & waveforms

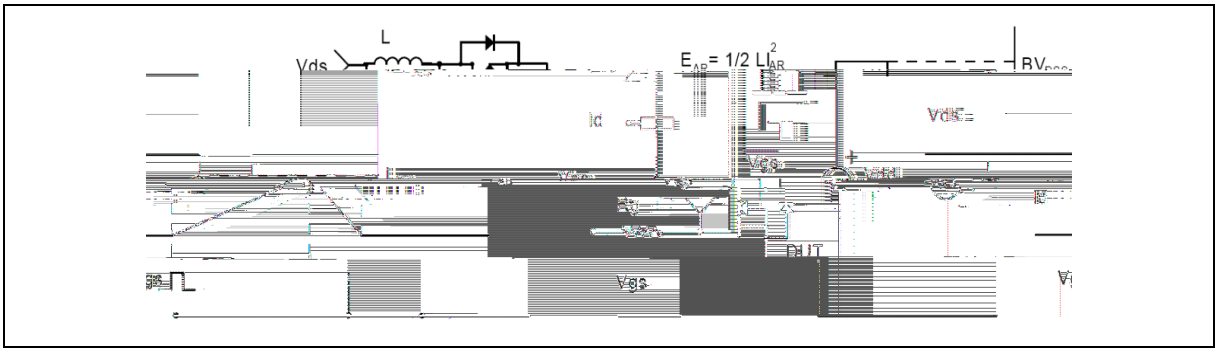


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

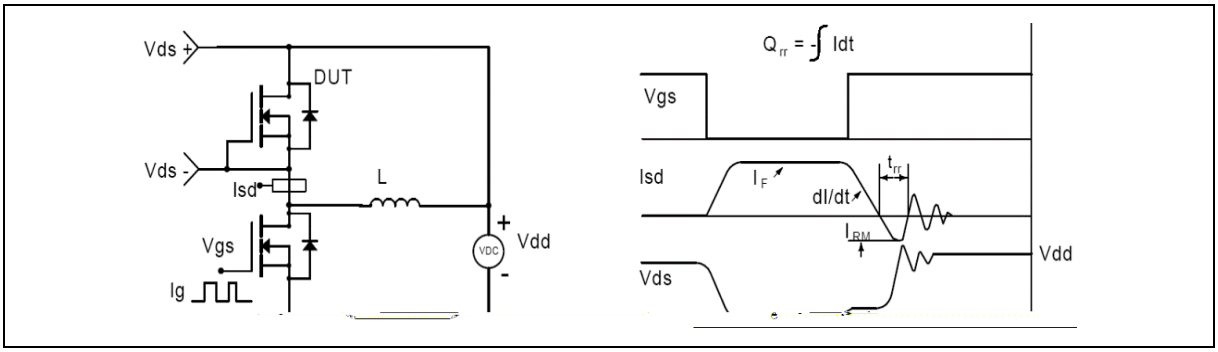
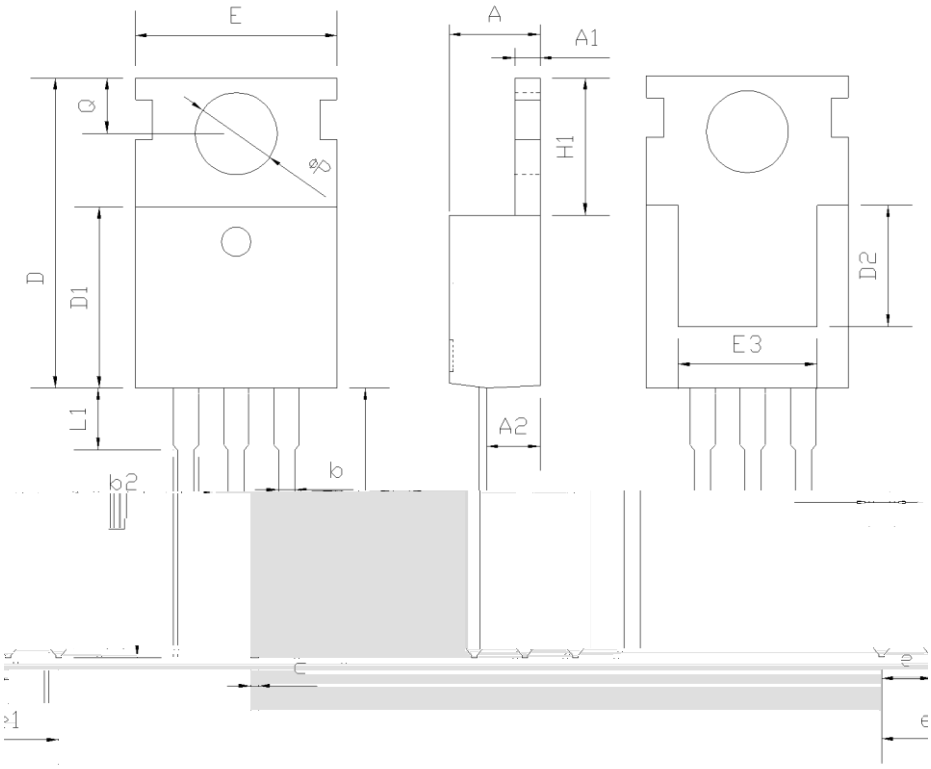


Figure 4. Diode reverse recovery test circuit & waveforms

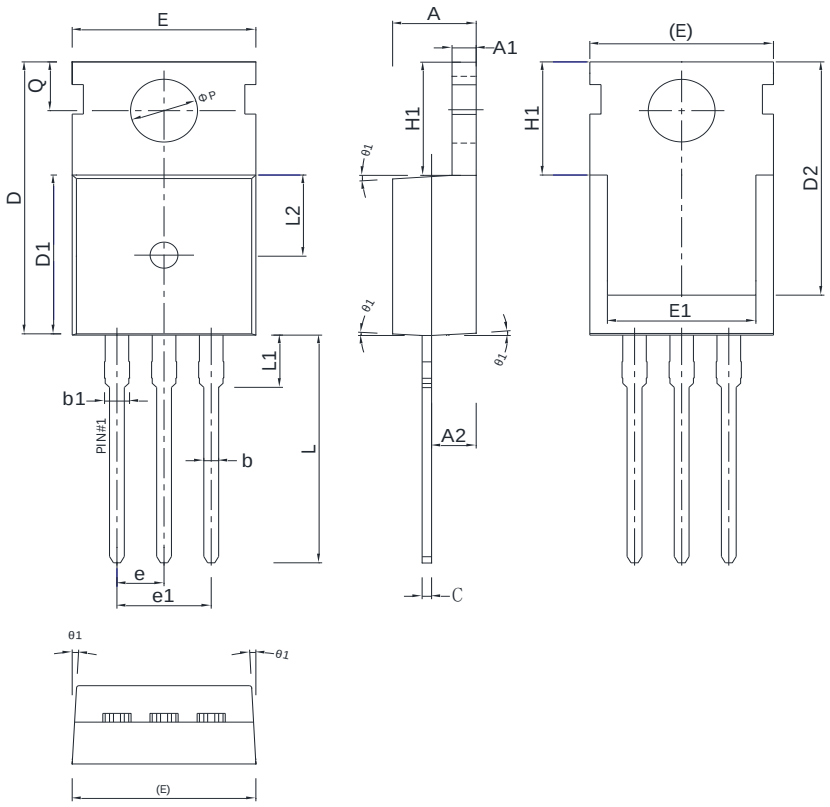
Package Information



Symbol	mm		
	Min	Nom	Max
A	4.37	4.57	4.77
A1	1.25	1.30	1.45
A2	2.20	2.40	2.60
b	0.70	0.80	0.95
b2	1.17	1.27	1.47
c	0.40	0.50	0.65
D	15.10	15.60	16.10
D1	8.80	9.10	9.40
D2	5.50	-	-
E	9.70	10.00	10.30
E3	7.00	-	-
e	2.54 BSC		
e1	5.08 BSC		
H1	6.25	6.50	6.85
L	12.75	13.50	13.80
L1	-	3.10	3.40
	3.40	3.60	3.80
Q	2.60	2.80	3.00

Version 1: TO220-C package outline dimension

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.40	4.50	4.60
A1	1.27	1.30	1.33
A2	2.30	2.40	2.50
b	0.70	-	0.90
b1	1.27	-	1.40
c	0.45	0.50	0.60
D	15.30	15.70	16.10
D1	9.10	9.20	9.30
D2	13.10	-	13.70
E	9.70	9.90	10.20
E1	7.80	8.00	8.20
e	2.54 BSC		
e1	5.08 BSC		
H1	6.30	6.50	6.70
L	12.78	13.08	13.38
L1	-	-	3.50
L2	4.60 REF		
	3.55	3.60	3.65
Q	2.73	-	2.87
1	1		

Version 2: TO220-J package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes / Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO220-C	50	20	1000	6	6000
TO220-J	50	20	1000	5	5000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
SFG130N08PF	TO220	yes	yes	yes

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