

General Description

SFGMOS[®]

$R_{DS(ON)}$

low gate charge, fast switching and excellent avalanche characteristics. The high V_{th} series is specially optimized for high systems with gate driving voltage greater than 10V.

Features

- Low $R_{DS(ON)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Fast switching and soft recovery

Applications

- Switched mode power supply
- Motor driver
- Battery protection
- DC-DC convertor
- Solar inverter
- UPS and energy inverter

Key Performance Parameters

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

Marking Information

Product Name	Package	Marking
SFG130N08KF	TO263	SFG130odehinformæ

Absolute Maximum Ratings at $T_j=25^{\circ}\text{C}$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	80	V
Gate source voltage	V_{GS}	± 20	V
Continuous drain current ¹⁾ , $T_C=25^{\circ}\text{C}$	I_D	130	A
Pulsed drain current ²⁾ , $T_C=25^{\circ}\text{C}$	$I_{D, pulse}$	390	A
Continuous diode forward current ¹⁾ , $T_C=25^{\circ}\text{C}$	I_S	130	A
Diode pulsed current ²⁾ , $T_C=25^{\circ}\text{C}$	$I_{S, pulse}$	390	A
Power dissipation ³⁾ , $T_C=25^{\circ}\text{C}$	P_D	192	W
Single pulsed avalanche energy ⁵⁾	E_{AS}	400	mJ
Operation and storage temperature	T_{stg}, T_j	-55 to 150	$^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R	0.65	$^{\circ}\text{C}/\text{W}$
Thermal resistance, junction-ambient ⁴⁾	R	62	$^{\circ}\text{C}/\text{W}$

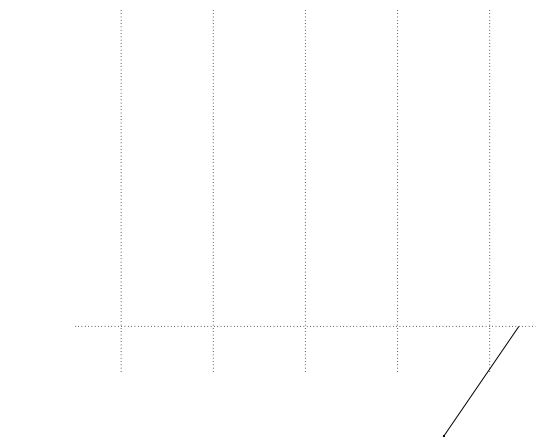

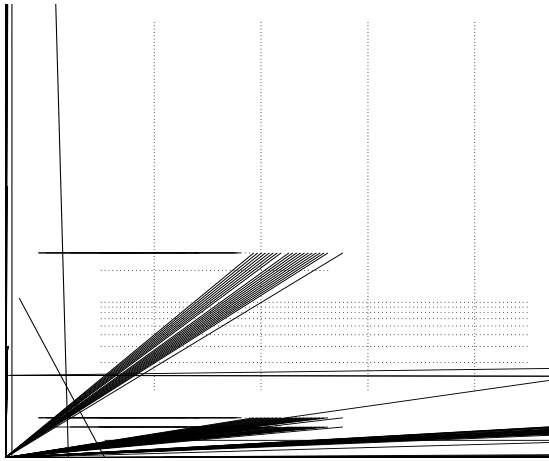
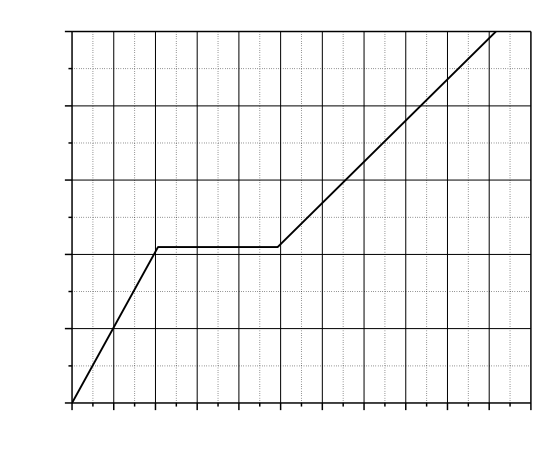
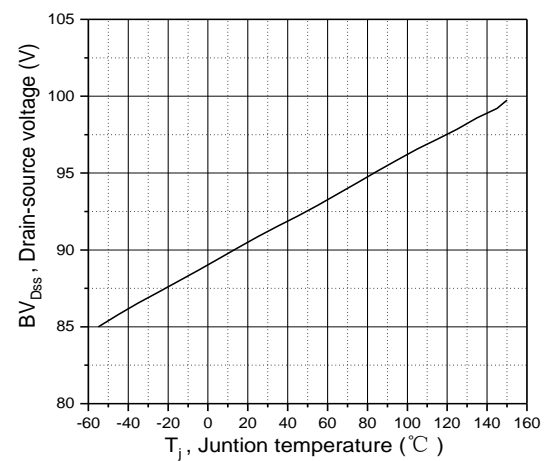

Electrical Characteristics at $T_j=25^{\circ}\text{C}$ unless otherwise specified

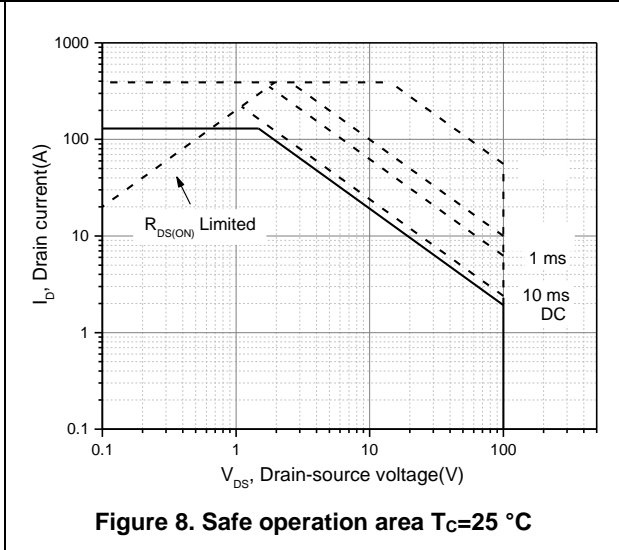
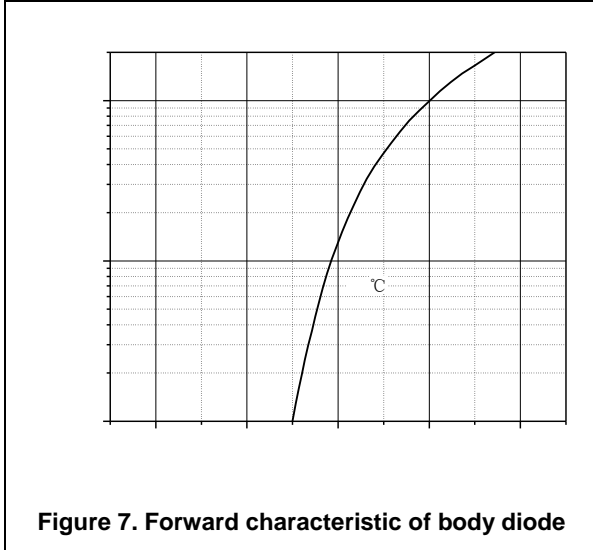
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	80				

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		8681		pF	$V_{GS}=0\text{ V}$, $V_{DS}=50\text{ V}$, 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	$V_{GS}=10\text{ V}$, $V_{DS}=50\text{ V}$, $R_G=2.2$ $I_D=22\text{ A}$
Rise time	t_r		7.5		ns	
Turn-off delay time	$t_{d(off)}$		81.9		ns	
Fall time	t_f					

Electrical Characteristics Diagrams

 <p>Figure 1. Typ. output characteristics</p>	 <p>Figure 2. Typ. transfer characteristics</p>
 <p>Figure 3. Typ. capacitances</p>	 <p>Figure 4. Typ. gate charge</p>
 <p>Figure 5. Drain-source breakdown voltage</p>	 <p>Figure 6. Drain-source on-state resistance</p>



Test circuits and waveforms

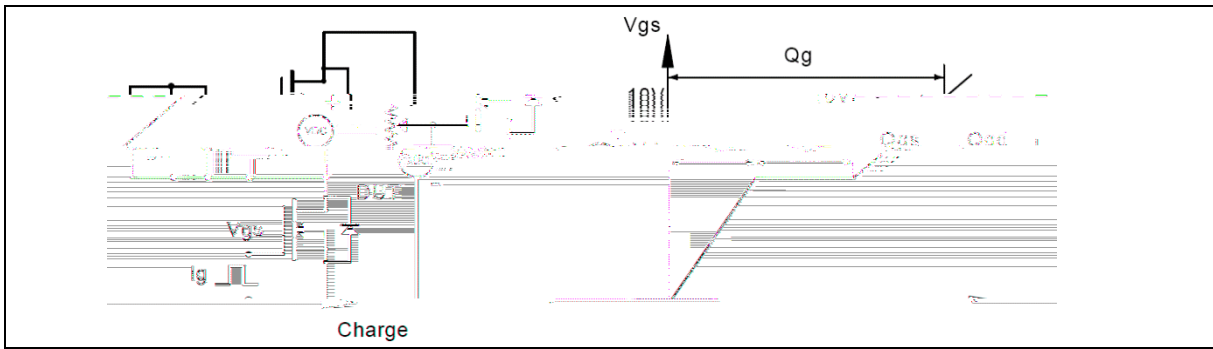


Figure 1. Gate charge test circuit & waveform

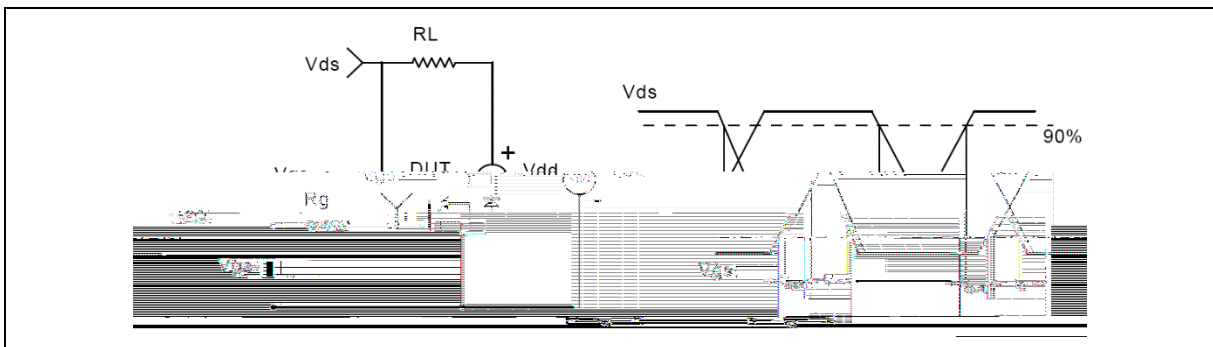


Figure 2. Switching time test circuit & waveforms

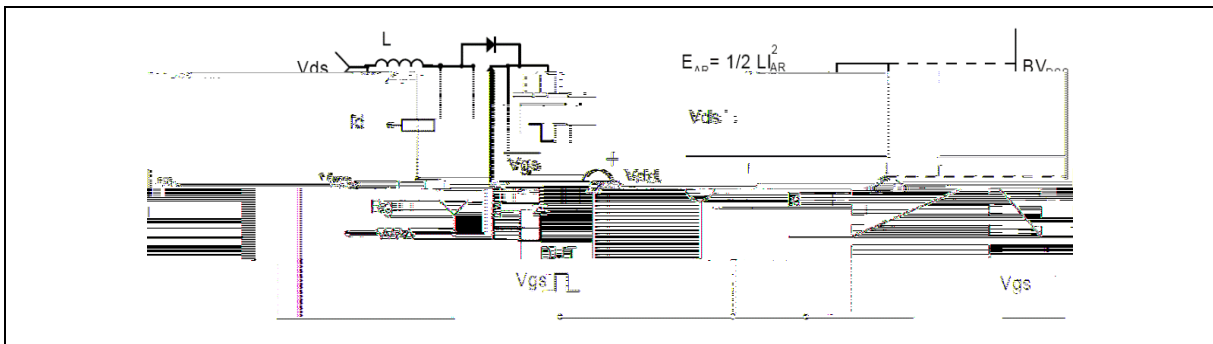


Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms

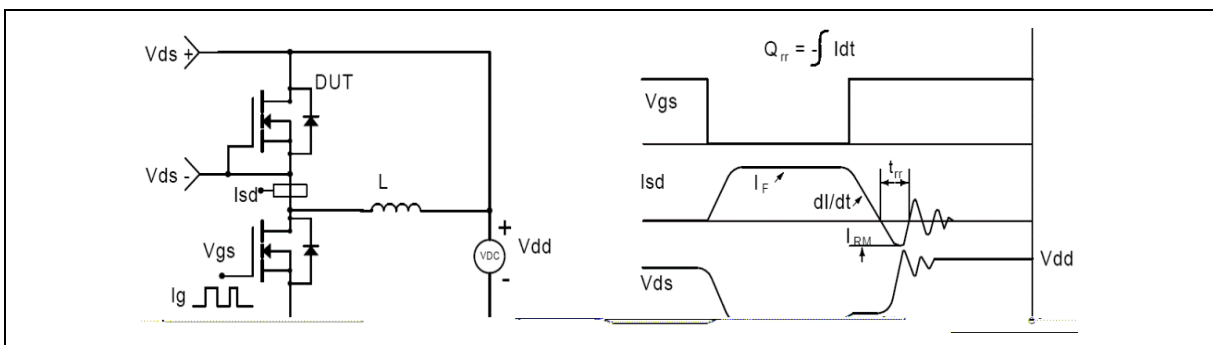
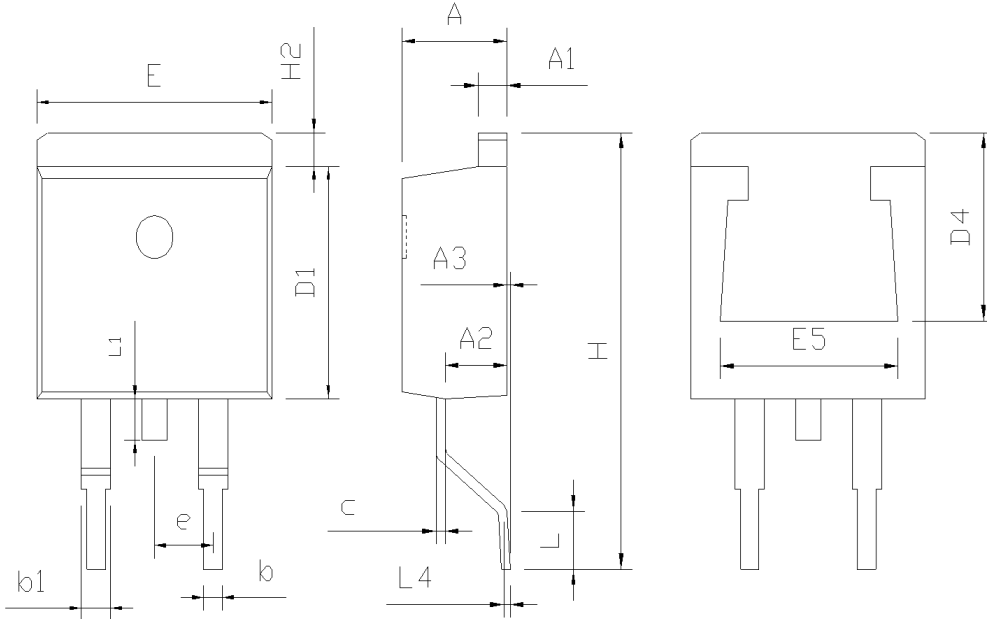


Figure 4. Diode reverse recovery test circuit & waveforms

Package Information



Symbol	mm		
	Min	Nom	Max
A	4.37	4.57	4.77
A1	1.22	1.27	1.42
A2	2.49	2.69	2.89
A3	0.00	0.13	0.25
b	0.70	0.81	0.96
b1	0.17	1.27	1.47
c	0.30	0.38	0.53
D1	8.50	8.70	8.90
D4	6.60	-	-
E	9.86	10.16	10.36
E5	7.06	-	-
e	2.54 BSC		
H	14.70	15.10	15.50
H2	1.07	1.27	1.47
L2	2.00	2.30	2.60
L1	1.40	1.55	1.70
L4	0.25 BSC		

Version 1: TO263-C package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels / Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO263-C	800	1	800	5	4000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
SFG130N08KF	TO263	yes	yes	yes

Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Oriental Semiconductor hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

For further information on technology, delivery terms and conditions and prices, please contact the Oriental Semiconductor sales representatives (www.orientalsemi.com).

© Oriental Semiconductor Co.,Ltd. All Rights Reserved /