

## General Description

SFGMOS<sup>®</sup>

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

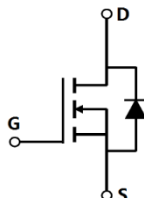
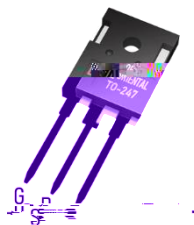
## Key Performance Parameters

Parameter	Value	Unit
$V_{DS, min} @ T_{j(max)}$	100	V
$I_{D, pulse}$	540	A
$R_{DS(ON), max} @ V_{GS}=10V$	3	
$Q_g$	158.8	nC

## Marking Information

Product Name	Package	Marking
SFG180N10HF	TO247	SFG180N10H

## Package & Pin information



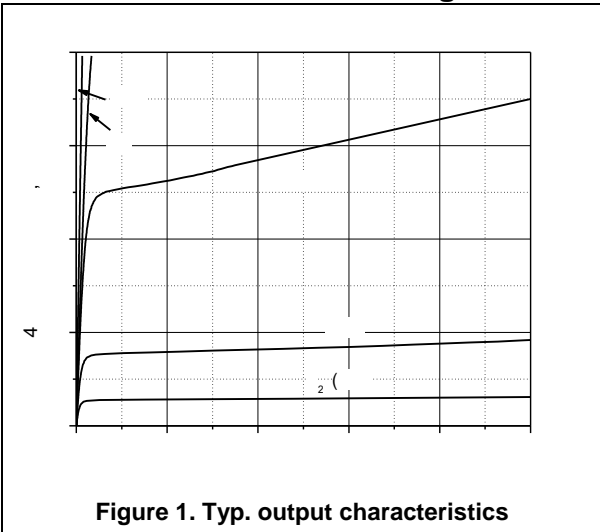
**Absolute Maximum Ratings** at  $T_j=25^{\circ}\text{C}$  unless otherwise noted

Parameter	Symbol	Value	Unit
Drain source voltage	$V_{DS}$	100	V
Gate source voltage	$V_{GS}$	$\pm 20$	V
Continuous drain current <sup>1)</sup> , $T_C=25^{\circ}\text{C}$	$I_D$	180	A
Pulsed drain current <sup>2)</sup> , $T_C=25^{\circ}\text{C}$	$I_{D, pulse}$	540	A
Continuous diode forward current <sup>1)</sup> , $T_C=25^{\circ}\text{C}$	$I_S$	180	A
Diode pulsed current <sup>2)</sup> , $T_C=25^{\circ}\text{C}$	$I_{S, pulse}$	540	A
Power dissipation <sup>3)</sup> , $T_C=25^{\circ}\text{C}$	$P_D$	375	W
Single pulsed avalanche energy <sup>5)</sup>	$E_{AS}$	1000	mJ
Operation and storage temperature	$T_{stg}$ $T_j$	-	

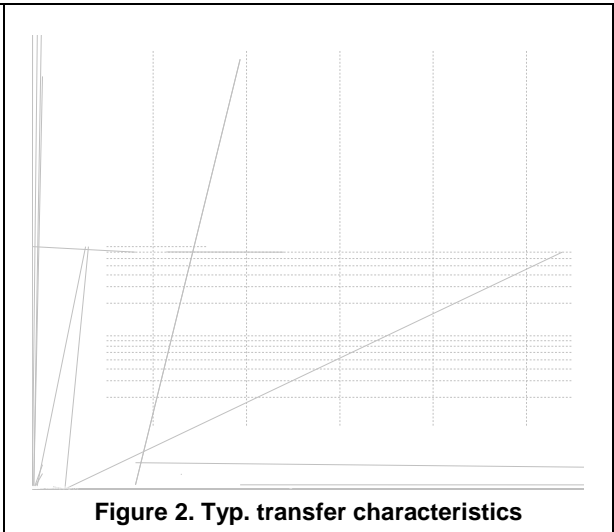
**Dynamic Characteristics**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	$C_{iss}$		10953		$\mu\text{F}$	

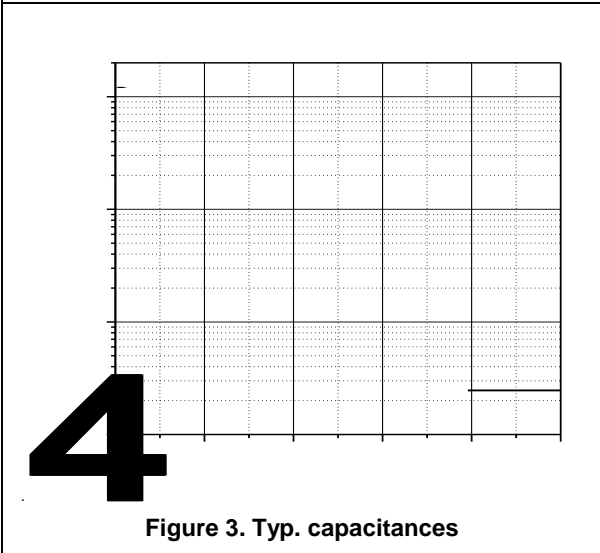
**Electrical Characteristics Diagrams**



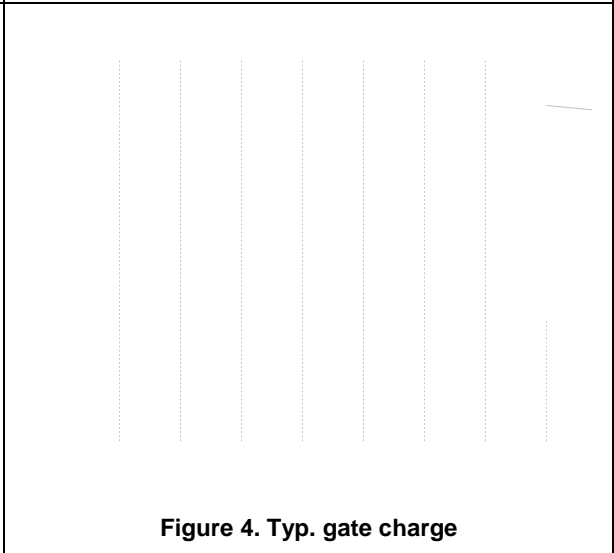
**Figure 1. Typ. output characteristics**



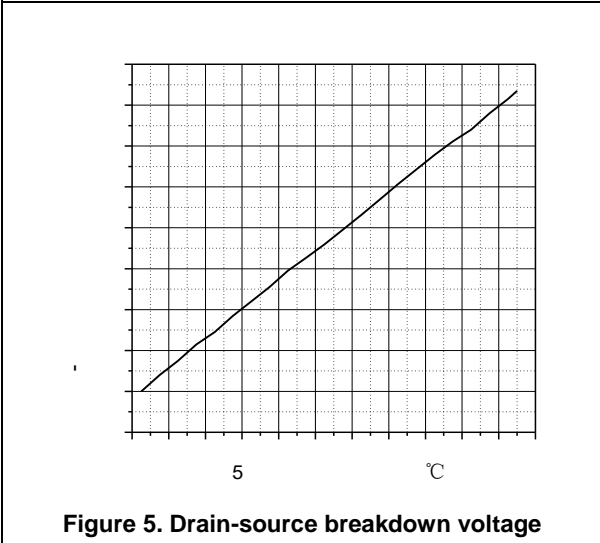
**Figure 2. Typ. transfer characteristics**



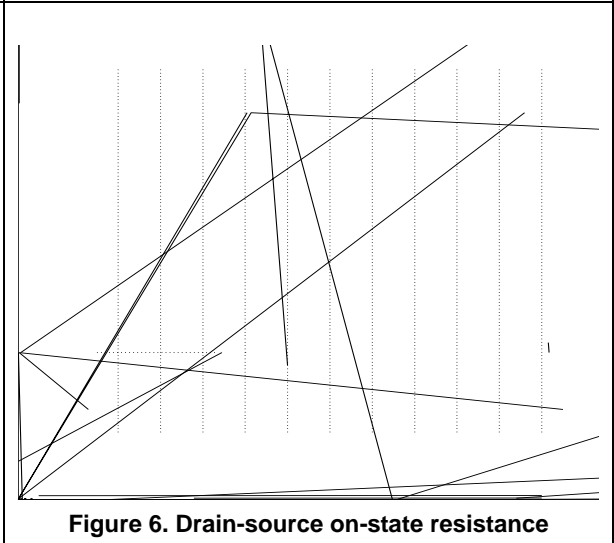
**Figure 3. Typ. capacitances**



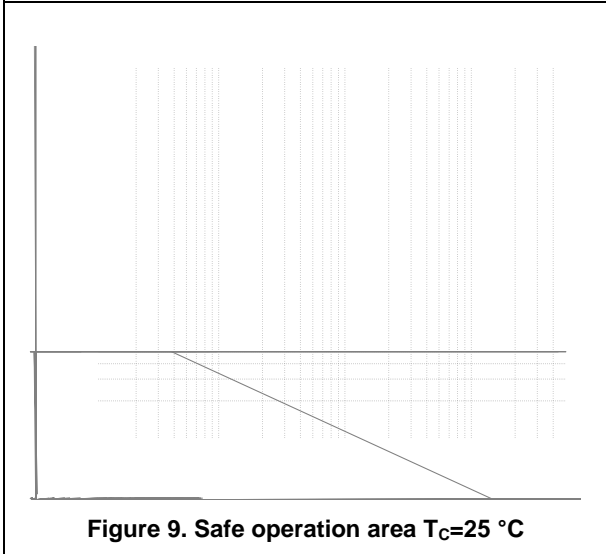
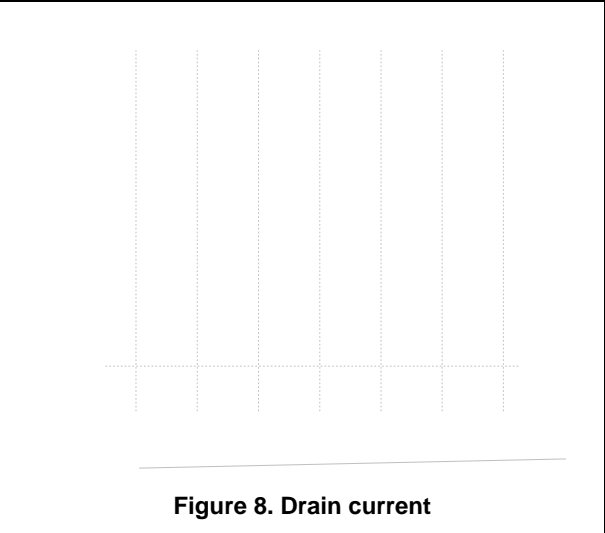
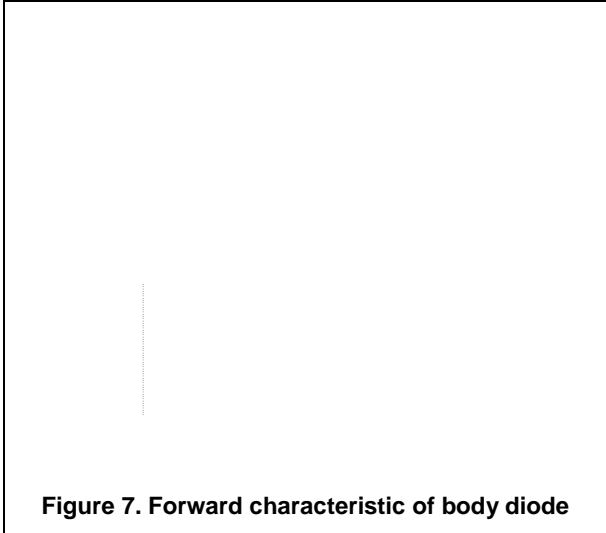
**Figure 4. Typ. gate charge**



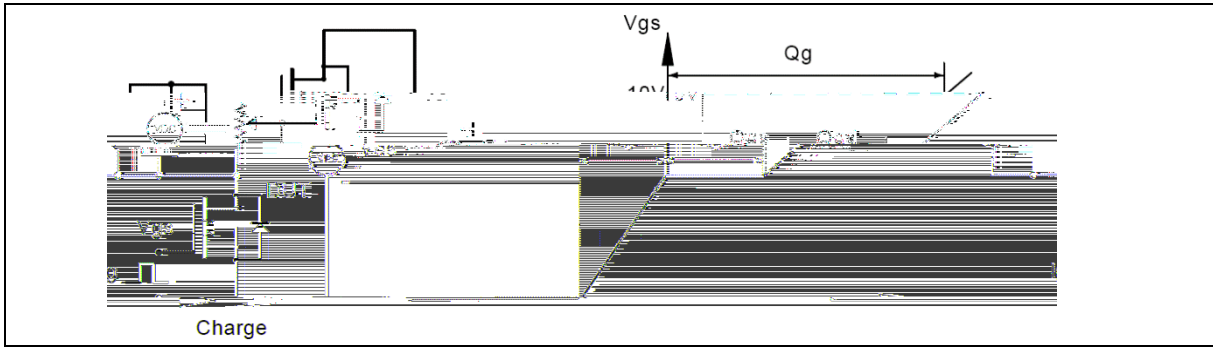
**Figure 5. Drain-source breakdown voltage**



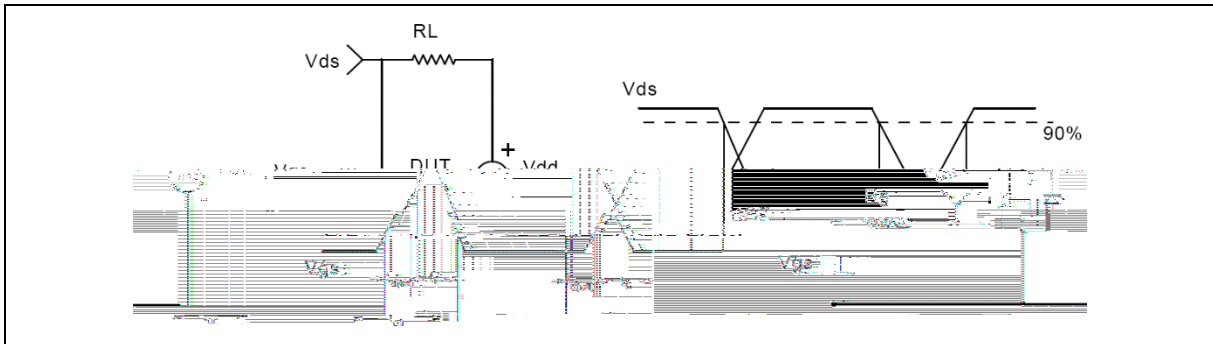
**Figure 6. Drain-source on-state resistance**



**Test circuits and waveforms**



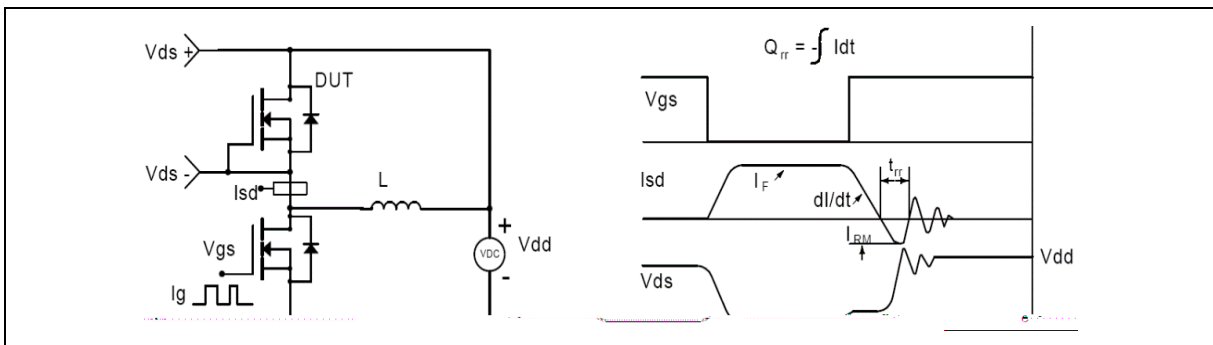
**Figure 1. Gate charge test circuit & waveform**



**Figure 2. Switching time test circuit & waveforms**

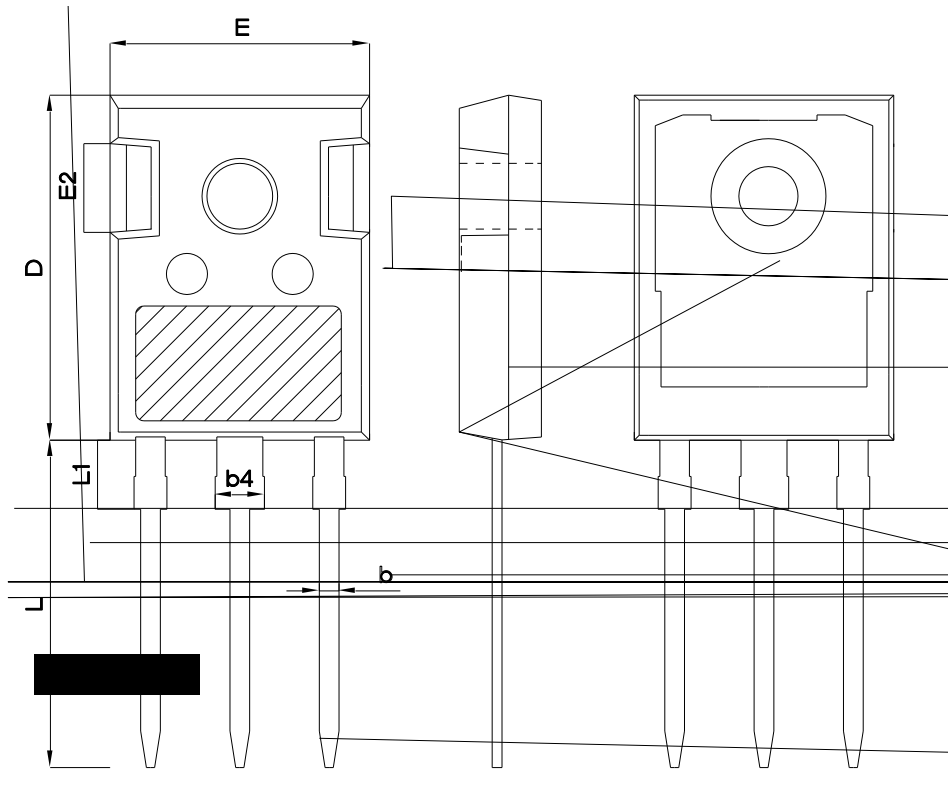


**Figure 3. Unclamped inductive switching (UIS) test circuit & waveforms**



**Figure 4. Diode reverse recovery test circuit & waveforms**

**Package Information**



Symbol	mm		
	Min	Nom	Max
A	4.80	5.00	5.20
A1	2.21	2.41	2.59
A2	1.85	2.00	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
b4	2.91	3.01	3.21
c	0.51	0.61	0.75
D	20.80	21.00	21.30
D1	16.25	16.55	16.85
E	15.50	15.80	16.10
E1	13.00	13.30	13.60
E2	4.80	5.00	5.20
E3	2.30	2.50	2.70
e	5.44BSC		
L	19.82	19.92	20.22
L1	-	-	4.30
	3.40	3.60	3.80
	-	-	7.30
S	6.15BSC		

Version 1: TO247-C package outline dimension

**Package Information**

Symbol	mm		
	Min	Nom	Max
A	4.90	5.00	5.10
A1	2.31	2.41	2.51
A2	1.90	2.00	2.10
a	0.00	-	0.15
a'	0.00	-	0.15
b	1.16	-	1.26
b1	1.15	1.2	1.22
b2	1.96	-	2.06
b3	1.95	2.00	2.02
b4	2.96	-	3.06
b5	2.96	3.00	3.02
b6	-	-	2.25
b7	-	-	3.25
c	0.59	-	0.66
c1	0.58	0.60	0.62
D	20.90	21.00	21.10
D1	16.25	16.55	16.85
D2	1.05	1.17	1.35
E	15.70	15.80	15.90
E1	13.10	13.30	13.50
E2	4.40	4.50	4.60
E3	2.40	2.50	2.60
e		5.436 BSC	
L	19.80	19.92	20.1JETA7



### Ordering Information

Package Type	Units/ Tube	Tubes / Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO247-C	30	11	330	6	1980
TO247-J	30	20	600	5	3000

### Product Information

Product	Package	Pb Free	RoHS	Halogen Free
SFG180N10HF	TO247	yes	yes	yes

### Legal Disclaimer

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