General Description

SFGMOS® @BF98G f TfXWba BeXagT FX VbaWhVdpef ha dhX WXi VX WXf Za gp TV XiX low $R_{DS(ON)}$, low gate charge, fast switching and excellent avalanche characteristics. The low V_{th} series is specially designed to use in synchronous rectification power systems with low driving voltage.

Features

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

Applications

- PD charger
- Motor driver
- Switching voltage regulator
- DC-DC convertor
- Switched mode power supply

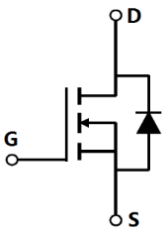
Key Performance Parameters

Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	100	V
$I_{D,\ pulse}$	300	A
$R_{DS(ON)\ max}$ @ V_{GS}=10V	8	
Q_g	60.7	nC

Marking Information

Product Name	Package	Marking
SFG10R08PF	TO220	SFG10R08P

Package & Pin information



Absolute Maximum Ratings at T_j=25°C unless otherwise noted

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	100	V
Gate source voltage	V_{GS}	±20	V
Continuous drain current[1)], T_C=25 °C	I_D	100	A
Pulsed drain current[2)], T_C=25 °C	$I_{D,\ pulse}$	300	A
Continuous diode forward current[1)], T_C=25 °C			

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		3530		pF	V_{GS}=0 V, V_{DS}=50 V, 0 MHz
Output capacitance	C_{oss}		560		pF	
Reverse transfer capacitance	C_{rss}		9.0		pF	
Turn-on delay time	$t_{d(on)}$		22.5		ns	V_{GS}=10 V, V_{DS}=50 V, R_G0 I_D=10 A
Rise time	t_r		8.6		ns	
Turn-off delay time	$t_{d(off)}$		66.6		ns	
Fall time	t_f		42.1		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		60.7		nC	V_{GS}=10 V, V_{DS}=50 V, I_D=10 A
Gate-source charge	Q_{gs}		7.2		nC	
Gate-drain charge	Q_{gd}		14.6		nC	
Gate plateau voltage	$V_{plateau}$		2.9		V	

Body Diode Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Diode forward voltage	V_{SD}			1.3	V	I_S=30 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		67		ns	V_R=50 V, I_S=10 A, WW0 4 f
Reverse recovery charge	Q_{rr}		160		nC	
Peak reverse recovery current	I_{rrm}		3.9			

Electrical Characteristics Diagrams

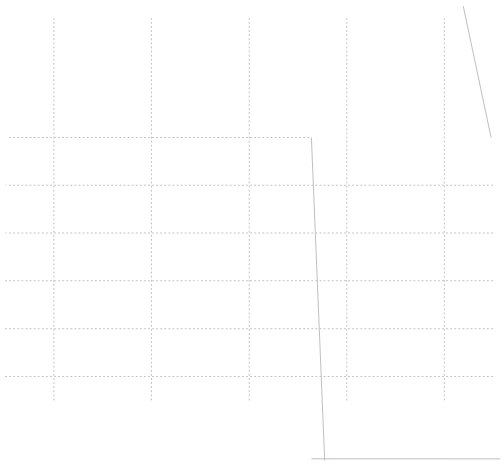


Figure 1. Typ. output characteristics

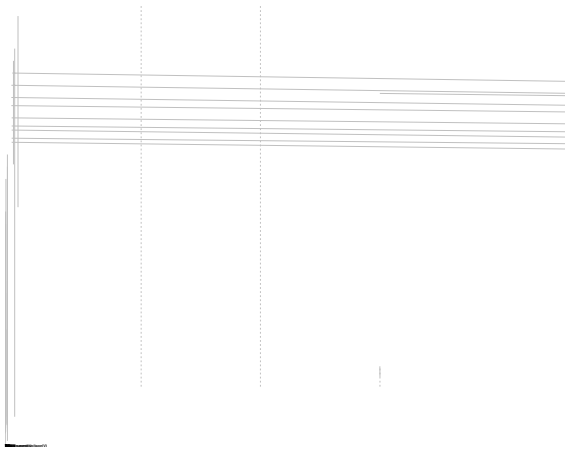


Figure 2. Typ. transfer characteristics

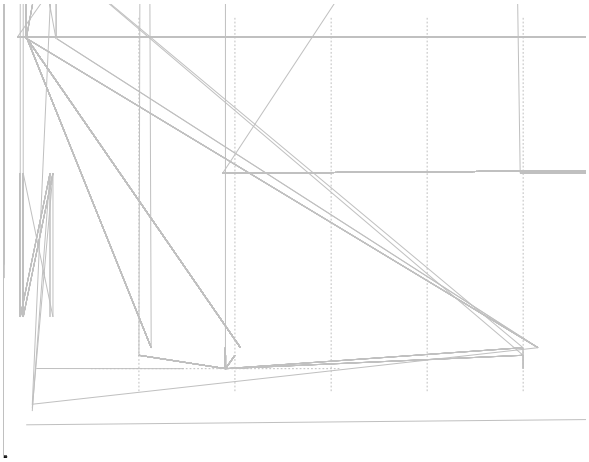


Figure 3. Typ. capacitances

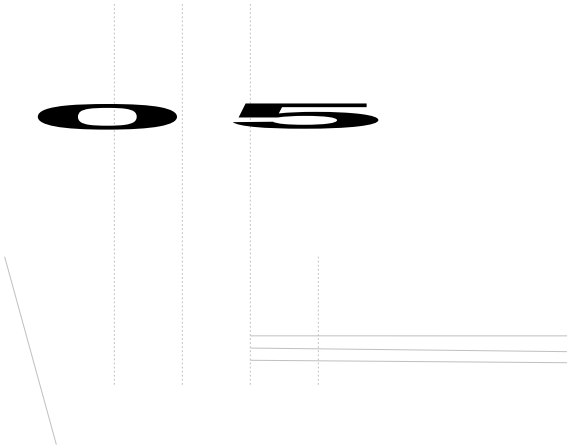


Figure 4. Typ. gate charge

Figure 5. Drain-source breakdown voltage

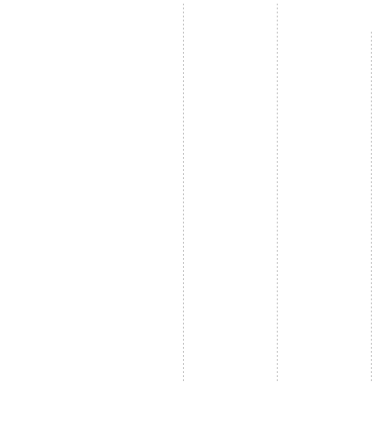


Figure 6. Drain-source on-state resistance

Figure 7. Drain-source on-state resistance

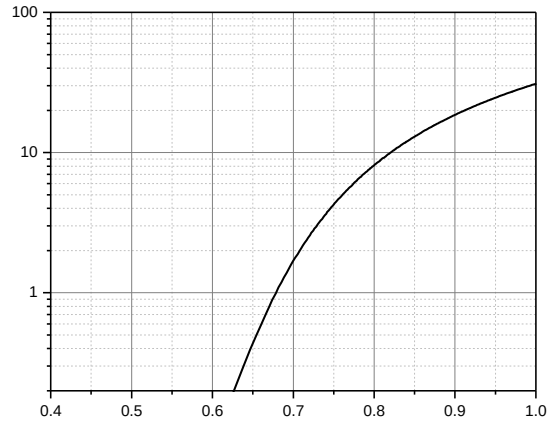


Figure 8. Forward characteristic of body diode

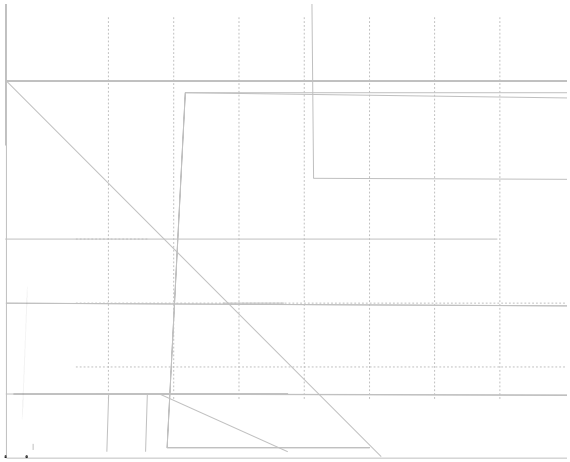


Figure 9. Drain current

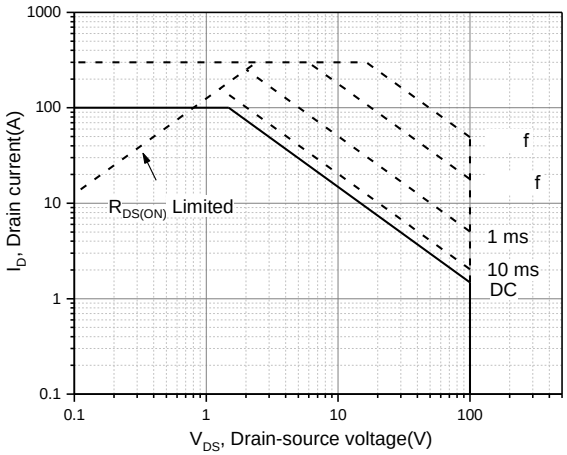


Figure 10. Safe operation area T_C=25 °C

Test circuits and waveforms

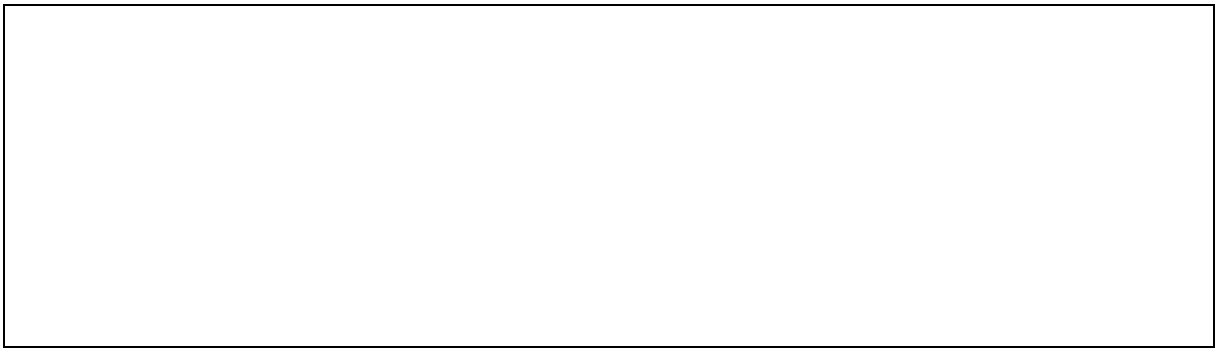


Figure 1. Gate charge test circuit & waveform

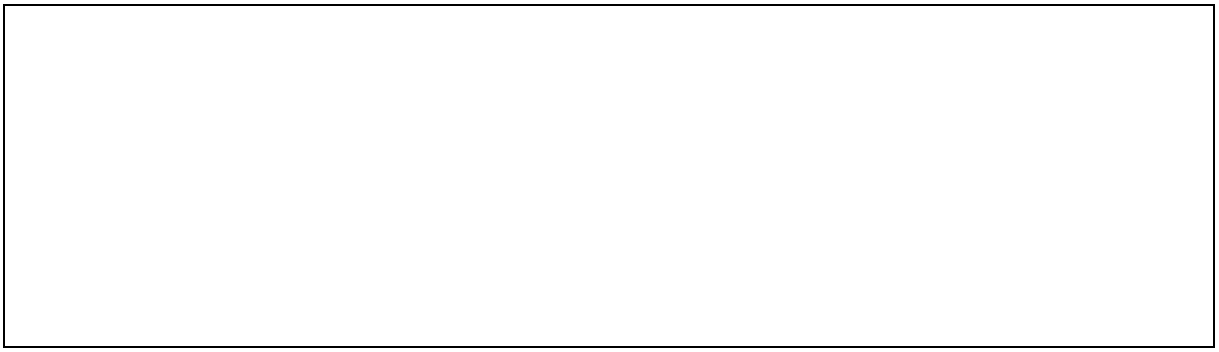


Figure 2. Switching time test circuit & waveforms

Figure 3.

Package Information

Symbol	mm		
	Min	Nom	Max
A	4.40	4.50	4.60

Ordering Information

Package Type	Units/ Tube	Tubes / Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box