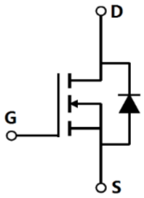
L @FHL FHL Mb Zl hg Hkb gmZeL f bhg n mhkl ngbj n ob l b g mh Z ab o ehp K=L HG ehp Zm aZk Zl ml p bmabg Zg q ee gmZoZeZg a aZkZ mkbmbl Ma ab a Omal kbl bb l i bZee hi mbf bs hk ab a l r l mf l p bma Zm kbbg oheml k Zmk maZg)O

- Ehp K=L HG HF
- qmk f ee ehp l p bmabg ehl l
- q ee gmk ebZ bbm Zg ngbhkf bm
- Zl ml p bmabg Zg l h mk ho kr

- Lp bma f h i hp kl ni i e
- F hmhk kbo k
- ; Zmmkr i khm mbng
- = -= hgo kmhk
- Solar inverter
- NI L Zg g k r bgo kmk

Parameter	Value	Unit
$V_{DS,\ min}$ @ $T_{j(max)}$	100	V
$I_{D,\ pulse}$	390	A
$R_{DS(ON),\ max}$ @ V_{GS}=10V	5	f
Q_g	91.7	nC

Product Name	Package	Marking
SFG10R05PF	TO220	SFG10R05P



Absolute Maximum Ratings at T_j=25 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	130	A
Pulsed drain current[2)], T_C=25 °C	$I_{D,\ pulse}$	390	A
Continuous diode forward current[1)], T_C=25 °C	I_S	130	A
Diode pulsed current[2)], T_C=25 °C	$I_{S,\ pulse}$	390	A
Power dissipation[3)], T_C=25 °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	°C

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case	R $_{C}$	0.65	°C/W
Thermal resistance, junction-ambient[4)]	R $_{C}$	62	°C/W

Electrical Characteristics at T_j=25 unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	100			V	V_{GS}=0 V, I_D=250 A
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	V_{DS}=V_{GS}, I_D=250 A
Drain-source on-state resistance	$R_{DS(ON)}$		4.0	5.0	f	V_{GS}=10 V, I_D=12 A
Gate-source leakage current	I_{GSS}			100	nA	V_{GS}=20 V
				-100		V_{GS}=-20 V
Drain-source leakage current	I_{DSS}			1	A	V_{DS}=100 V, V_{GS}=0 V

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{iss}		6388.6		pF	V_{GS}=0 V, V_{DS}=50 V, 6 F Hz
Output capacitance	C_{oss}		923.3		pF	
Reverse transfer capacitance	C_{rss}		1.4		pF	
Turn-on delay time	$t_{d(on)}$		30.9		ns	V_{GS}=10 V, V_{DS}=50 V, R_G6 I_D=25 A
Rise time	t_r		10.0		ns	
Turn-off delay time	$t_{d(off)}$		66.8		ns	
Fall time	t_f		12.5		ns	

Gate Charge Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Total gate charge	Q_g		91.7		nC	V_{GS}=10 V, V_{DS}=50 V, I_D=25 A
Gate-source charge	Q_{gs}		23.7		nC	
Gate-drain charge	Q_{gd}		22.3		nC	
Gate plateau voltage	$V_{plateau}$		4.8		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}		88.0		ns	I_S=25 A, k(m6)) : (l
Reverse recovery charge	Q_{rr}		273		nC	
Peak reverse recovery current	I_{rrm}		5.2		A	

Note

1) 2l 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

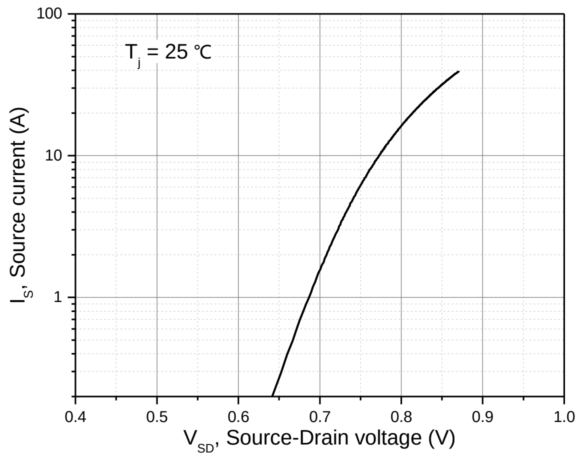


Figure 7. Forward characteristic of body diode

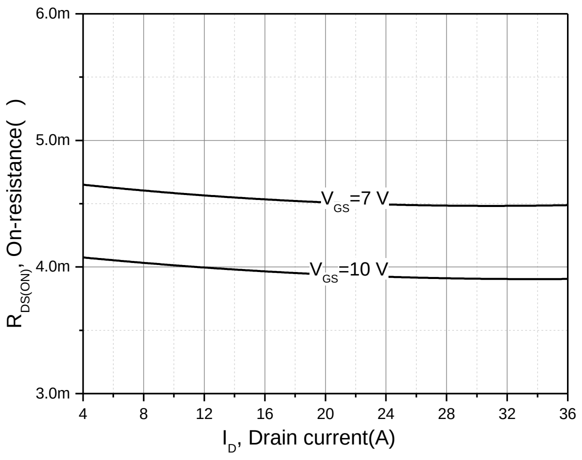


Figure 8. Drain-source on-state resistance

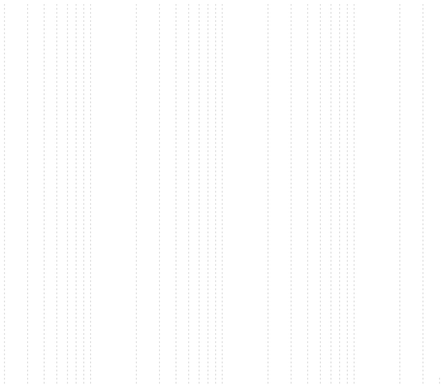
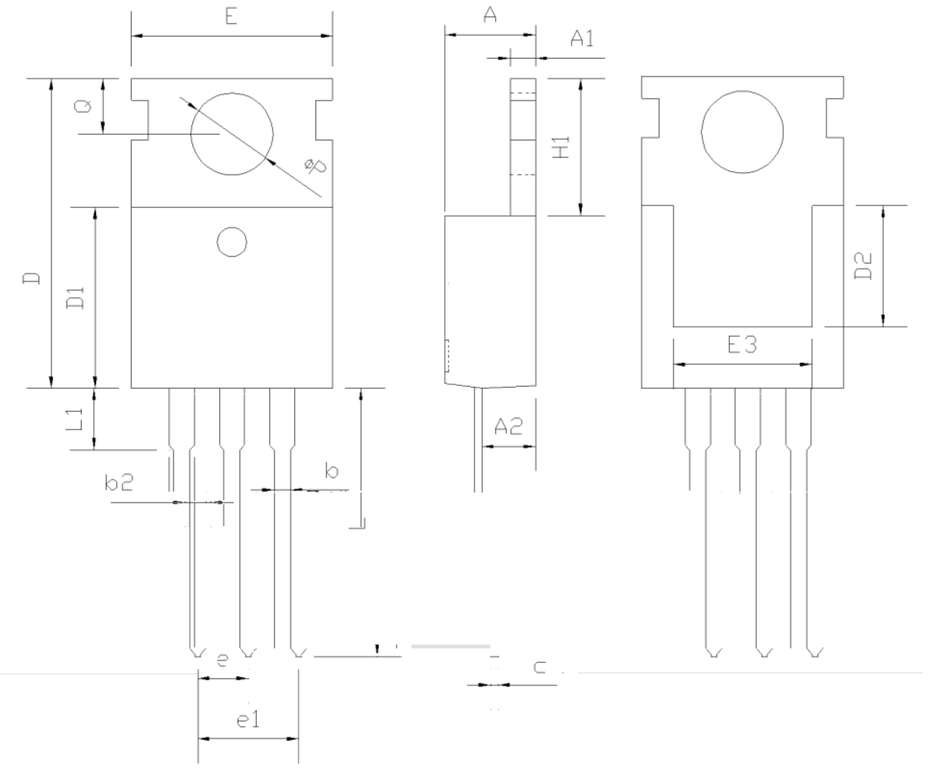


Figure 9. Safe operation area T_C=25 °C

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	2.54BSC		
e1	5.08BSC		
H1	6.25	6.50	6.85
L	12.75	13.50	13.80
L1	-	3.10	3.40
I	3.40	3.60	3.80
Q	2.60	2.80	3.00

Version 1: TO220-C 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

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
SFG10R05PF	TO220	yes	yes	yes

Ma bg hkf Zmbg bo g bg mab h nf gml aZeebg gh o gm k Zk Zl Z nZkZgm h hg bbgl hk aZkZ mkbmbl P ba k l i mh Zgr qZf i e l hk abgh bo g a k bg Zgr mi b ZeoZe l l nZm a k bg Zg (hk Zgr bg hkf Zmbg k Zk bg ma Zi i eb Zmbg h ma ob Hkb gnZeL f b hg n mhk a k r lb eZbf l Zgr Zg Zeep ZkkZgmb l Zg eZ bebl h Zgr dbg bg en bg p bahnmeb bZmbg p ZkkZgmb l h ghg-bg kbg f gmh bgmee mZei khi km kb amh Zgr mabk i Zkm

hk nkma k bg hkf Zmbg hg m aghe r eb kr mkf l Zg hg bbgl Zg i kb l i e Zl hgmZ ma Hkb gnZeL f b hg n mhkl Zel k i k l gnZmb l ppp hkb gnZe f b hf

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