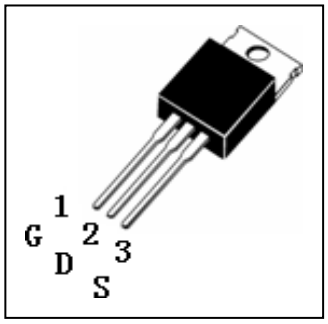
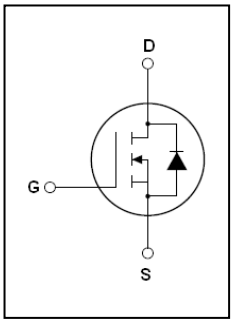
Main Product Characteristics:

V_{DSS}	100V
R_{DS}(on)	5.8mohm（Typ）
I_D	130A





SSF1007 TOP View (TO220)

Features and Benefits:

- Advanced trench MOSFET process technology
- Special designed for convertors and power controls
- Ultra low on-resistance
- 175℃ operating temperature
- High Avalanche capability and 100% tested

Description:

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

Absolute max Rating:

Symbol	Parameter	Max.	Units
ID @ TC = 25°C	Continuous Drain Current, VGS @ 10V①	130	A
ID @ TC = 100°C	Continuous Drain Current, VGS @ 10V①	91	
IDM	Pulsed Drain Current②	520	
PD @TC = 25°C	Power Dissipation③	258	W
	Linear derating factor	1.7	W/ C˚
VGS	Gate-to-Source Voltage	± 20	V
EAS	Single Pulse Avalanche Energy @ L=0.3mH②	735	mJ
IAR	Avalanche Current @ L=0.3mH②	75	A
TJ TSTG	Operating Junction and Storage Temperature Range	-55 to + 175	°C

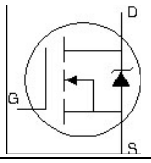
Thermal Resistance

Symbol	Characterizes	Value	Unit
$R_{\theta JC}$	Junction-to-case③	0.58	℃/W
$R_{\theta JA}$	Junction-to-ambient (t ≤ 10s) ④	62	℃/W

Electrical Characterizes @T_A=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max	Units	Conditions
BVDSS	Drain-to-Source breakdown voltage	100	—	—	V	VGS = 0V, ID = 250μA
RDS(on)	Static Drain-to-Source on-resistance	—	5.8	7	mΩ	VGS = 10V, ID = 75A③
VGS(th)	Gate threshold voltage	2	—	4	V	VDS = VGS, ID = 250μA
IDSS	Drain-to-Source leakage current	—	—	20	μA	VDS = 100V, VGS = 0V
		—	—	250		VDS = 80V, VGS = 0V, TJ = 125°C
IGSS	Gate-to-Source forward leakage	—	—	100	nA	VGS = 20V
	Gate-to-Source reverse leakage	—	—	-100		VGS = -20V
Qg	Total gate charge	—	243	—	nC	ID = 75A
Qgs	Gate-to-Source charge	—	47	—		VDS = 50V
Qgd	Gate-to-Drain("Miller") charge	—	92	—		VGS = 10V③
td(on)	Turn-on delay time	—	28	—	ns	VDD = 65V
tr	Rise time	—	108	—		ID = 75A
td(off)	Turn-Off delay time	—	123	—		RG = 2.7 Ω
tf	Fall time	—	120	—		VGS = 10V③
Ciss	Input capacitance	—	8456	—	pF	VGS = 0V
Coss	Output capacitance	—	454	—		VDS = 50V
Crss	Reverse transfer capacitance	—	417	—		f = 500KHz

Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max	Units	Conditions
IS	Continuous Source Current (Body Diode)	—	—	130	A	MOSFET symbol showing the integral reverse p-n junction diode. 
ISM	Pulsed Source Current (Body Diode) ①	—	—	520		TJ = 25°C, IS = 75A, VGS = 0V③
VSD	Diode Forward Voltage	—	—	1.3	V	TJ = 25°C, IF = 75A, VDD = 20V di/dt = 100A/μs③
Trr	Reverse Recovery Time	—	57	70	ns	TJ = 25°C, IF = 75A,Vgs=0V di/dt = 100A/μs③
Qrr	Reverse Recovery Charge	—	156	170	nC	
ton	Forward Turn-on Time	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Typical electrical and thermal characteristics

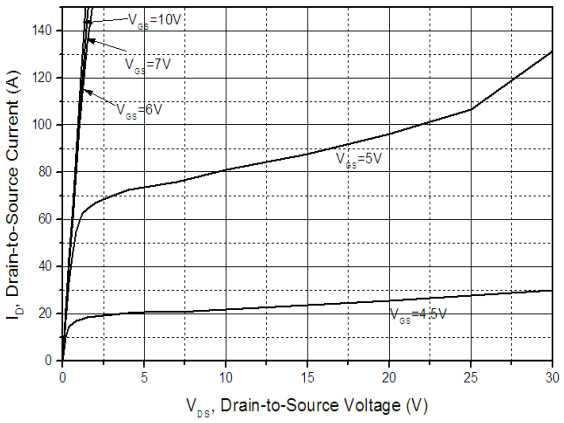


Figure 1. Typical Output Characteristics

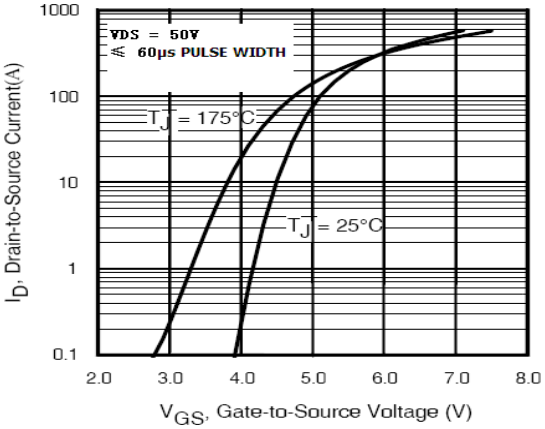


Figure 2. Typical Transfer Characteristics

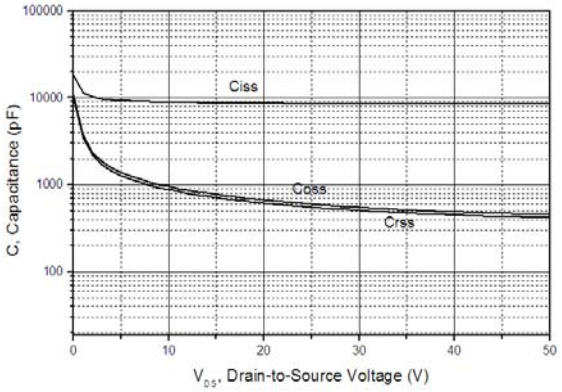


Figure 3.Typical Capacitance Vs. Drain-to-Source Voltage

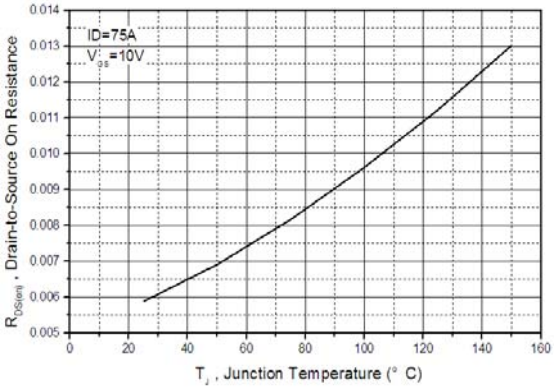


Figure 4. Normalized On-Resistance Vs. Case Temperature

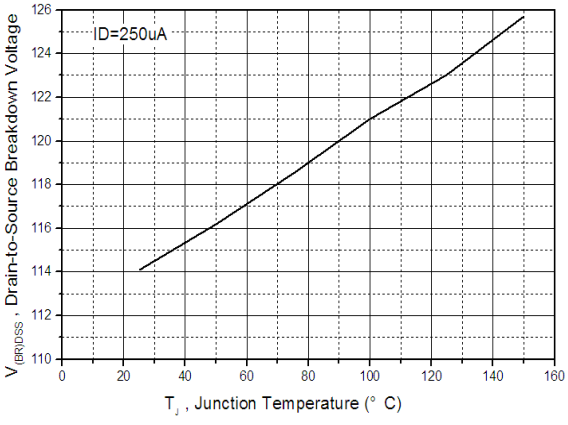


Figure 5. Drain-to-Source Breakdown Voltage vs. Temperature

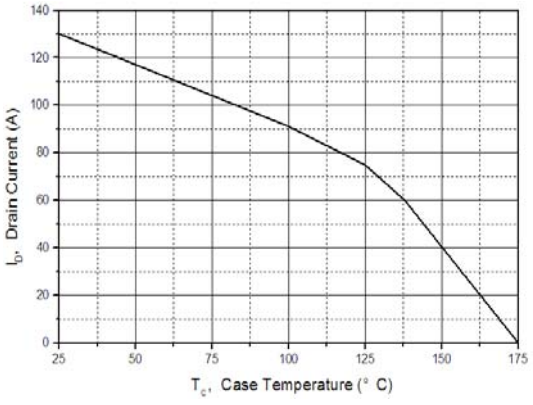


Figure 6. Maximum Drain Current Vs. Case Temperature

Typical electrical and thermal characteristics

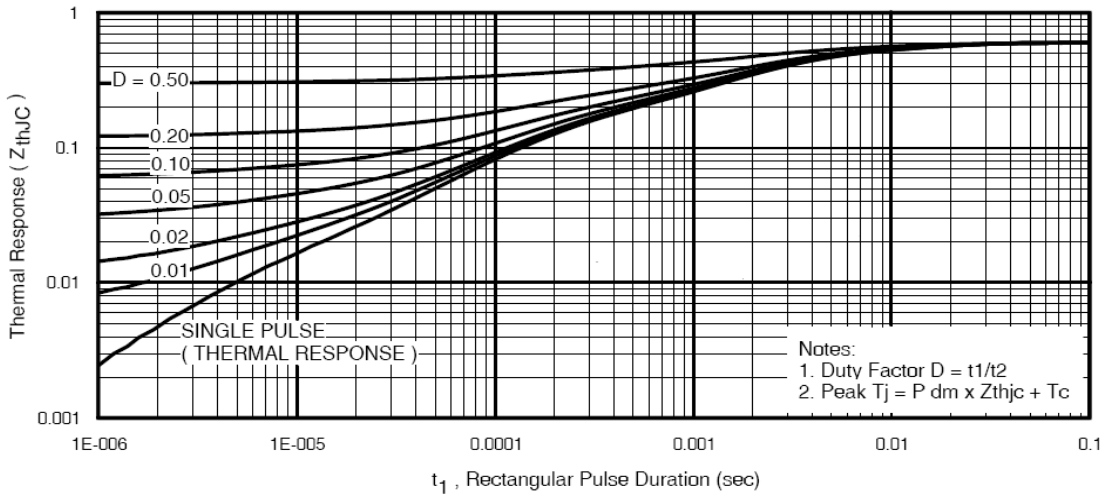
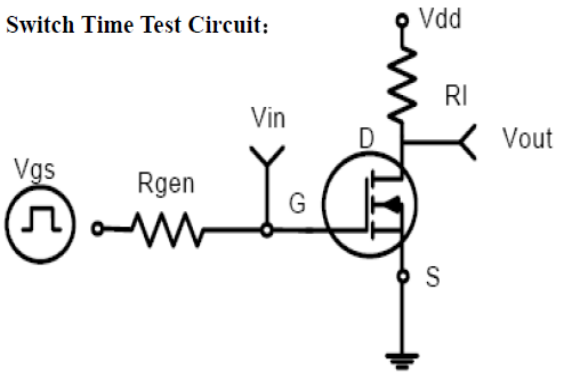
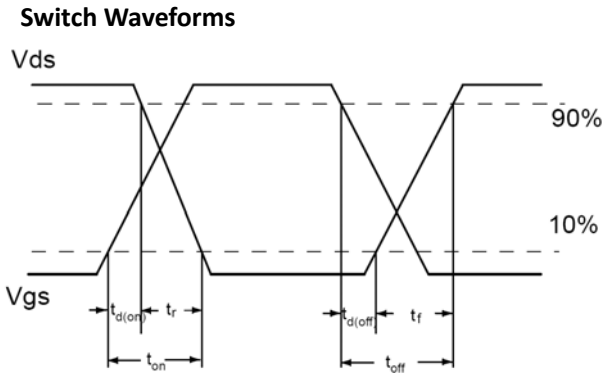


Figure 7. Maximum Effective Transient Thermal Impedance, Junction-to-Case





Notes:

①Repetitive rating; pulse width limited by max. junction temperature.

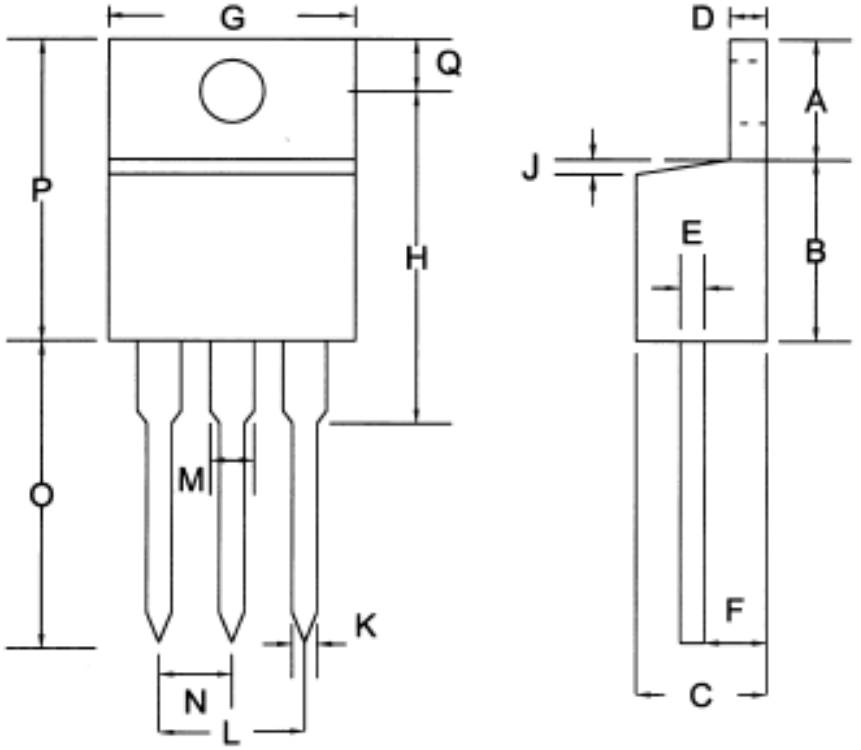
②Limited by TJmax, starting TJ = 25°C, L = 0.3mH RG =50Ω, IAS = 70A, VGS =10V. Part not recommended for use above this value.

③Pulse width < 1.0ms; duty cycle<2%.

④This is only applied to TO-220 package

Mechanical Data：

TO220



Symbol	Dimensions In Millmeters			Dimensions In Inches		
	Min	Nom	Max	Min	Nom	Max
A	5.58	6.54	7.49	0.220	0.257	0.295
B	8.38	8.64	8.90	0.330	0.340	0.350
C	4.07	4.45	4.82	0.160	0.175	0.190
D	1.15	1.27	1.39	0.045	0.050	0.055
E	0.35	0.45	0.60	0.014	0.018	0.024
F	2.04	2.42	2.79	0.080	0.095	0.110
G	9.66	9.97	10.28	0.380	0.393	0.405
H	—	16.25	—	—	0.640	—
I	3.68	3.83	3.98	0.145	0.151	0.157
J	—	—	1.27	—	—	0.050
K	0.75	0.85	0.95	0.030	0.033	0.037
L	4.83	5.08	5.33	0.190	0.200	0.210
M	1.15	1.33	1.52	0.045	0.052	0.060
N	2.42	2.54	2.66	0.095	0.100	0.105
O	12.70	13.48	14.27	0.500	0.531	0.562
P	14.48	15.17	15.87	0.570	0.597	0.625
Q	2.54	2.79	3.04	0.100	0.110	0.120