

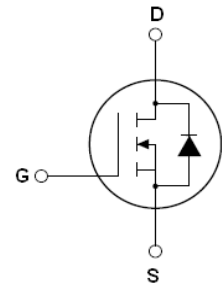
Features:

- Advanced trench process technology
- Special designed for Convertors and power controls
- High density cell design for ultra low Rdson
- Fully characterized Avalanche voltage and current
- Avalanche Energy 100% test

ID=130A

BV=80V

Rdson=5.5mΩ (Typ.)

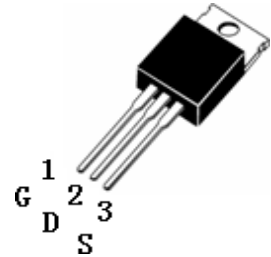


Description:

The SSF7508 is a new generation of middle voltage and high current N-Channel enhancement mode trench power MOSFET. This new technology increases the cell density and reduces the on-resistance; its typical Rdson can reduce to 5.5mohm.

Application:

- Power switching application



SSF7508 TOP View (TO220)

Absolute Maximum Ratings

	Parameter	Max.	Units
$I_D@T_c=25^\circ\text{C}$	Continuous drain current,VGS@10V	130	A
$I_D@T_c=100^\circ\text{C}$	Continuous drain current,VGS@10V	110	
I_{DM}	Pulsed drain current ①	520	
$P_D@T_c=25^\circ\text{C}$	Power dissipation	220	W
	Linear derating factor	2.0	W/ °C
V_{GS}	Gate-to-Source voltage	±20	V
dv/dt	Peak diode recovery voltage	20	v/ns
E_{AS}	Single pulse avalanche energy ②	660	mJ
E_{AR}	Repetitive avalanche energy	TBD	
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +175	°C

Thermal Resistance

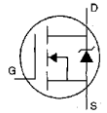
	Parameter	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case	—	0.68	—	°C/W
$R_{\theta JA}$	Junction-to-ambient	—	—	62	

Electrical Characteristics @TJ=25 °C (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS}	Drain-to-Source breakdown voltage	80	—	—	V	$V_{GS}=0V, I_D=250\mu A$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	5.5	7	mΩ	$V_{GS}=10V, I_D=30A$
$V_{GS(th)}$	Gate threshold voltage	2.0	3.1	4.0	V	$V_{DS}=V_{GS}, I_D=250\mu A$
g_{fs}	Forward transconductance	—	62	—	S	$V_{DS}=5V, I_D=30A$
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	$V_{DS}=80V, V_{GS}=0V$
		—	—	10		$V_{DS}=80V, V_{GS}=0V, T_J=150^\circ\text{C}$

I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS}=20V$
	Gate-to-Source reverse leakage	—	—	-100		$V_{GS}=-20V$
Q_g	Total gate charge	—	120	—	nC	$I_D=30A$
Q_{gs}	Gate-to-Source charge	—	22	—		$V_{DD}=30V$
Q_{gd}	Gate-to-Drain("Miller") charge	—	35	—		$V_{GS}=10V$
$t_{d(on)}$	Turn-on delay time	—	22	—	nS	$V_{DD}=30V$
t_r	Rise time	—	19.8	—		$I_D=2A, R_L=15\Omega$
$t_{d(off)}$	Turn-Off delay time	—	77.8	—		$R_G=2.5\Omega$
t_f	Fall time	—	16.7	—		$V_{GS}=10V$
C_{iss}	Input capacitance	—	3680	—	pF	$V_{GS}=0V$
C_{oss}	Output capacitance	—	380	—		$V_{DS}=25V$
C_{rss}	Reverse transfer capacitance	—	280	—		$f=1.0MHz$

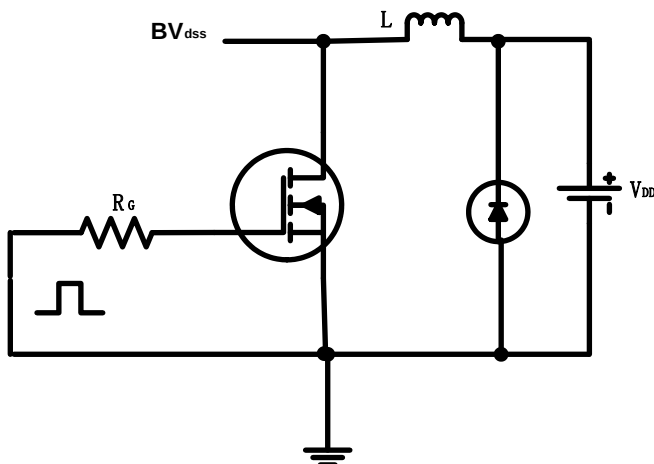
Source-Drain Ratings and Characteristics

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
I _S	Continuous Source Current (Body Diode)	—	—	130	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	520		
V _{SD}	Diode Forward Voltage	—	—	1.3	V	T _J =25°C, I _S =40A, V _{GS} =0V ③
t _{rr}	Reverse Recovery Time	—	100	—	nS	T _J =25°C, I _F =75A di/dt=100A/μs ③
Q _{rr}	Reverse Recovery Charge	—	350	—	nC	
t _{on}	Forward Turn-on Time	Intrinsic turn-on time is negligible (turn-on is dominated by L _S + L _D)				

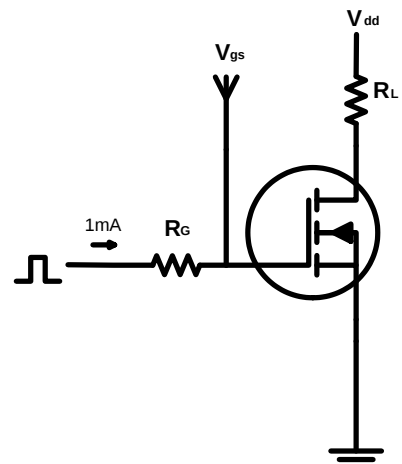
Notes:

- ① Repetitive rating; pulse width limited by max junction temperature.
- ② Test condition: $L = 0.3mH, I_D = 60A, V_{DD} = 37.5V$
- ③ Pulse width $\leq 300\mu s$; duty cycle $\leq 1.5\%$ $R_G = 25\Omega$; Starting $T_J = 25^\circ C$

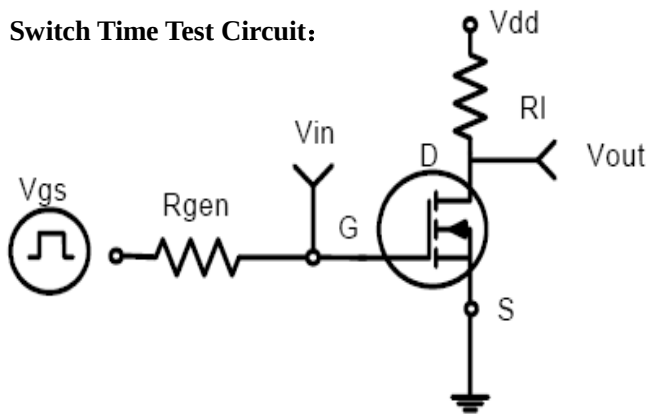
EAS test circuits:



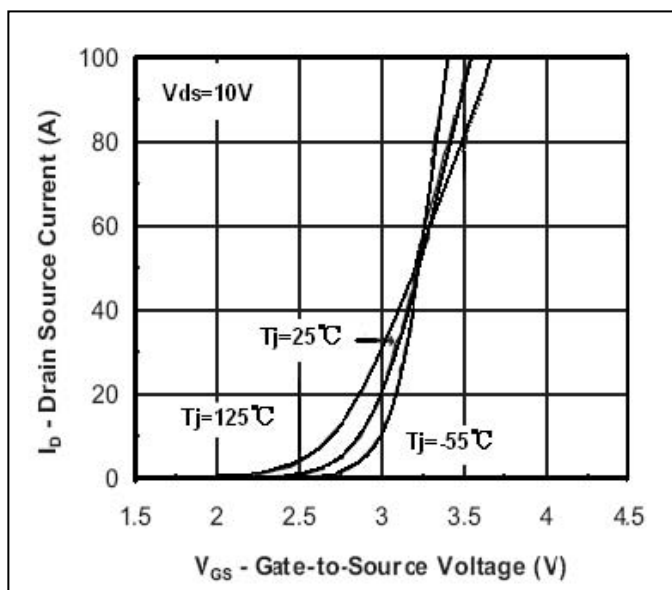
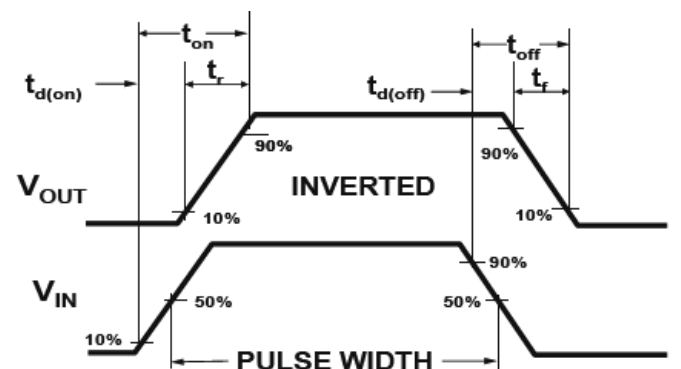
Gate charge test circuit:



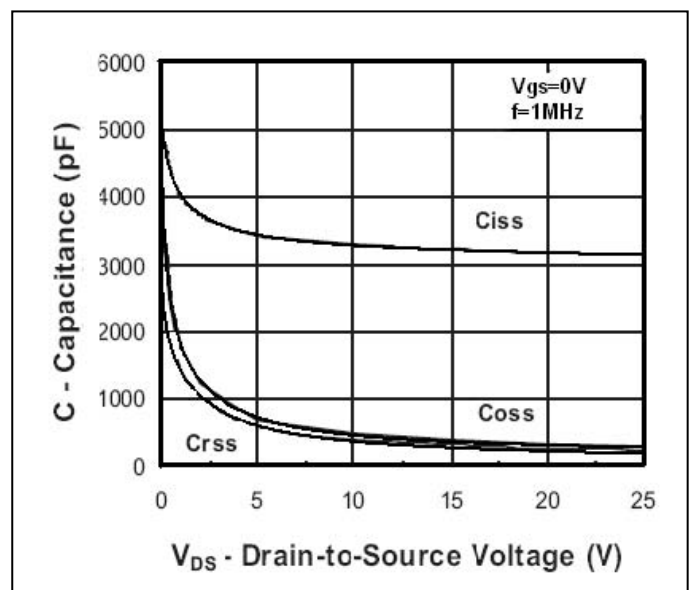
Switch Time Test Circuit:



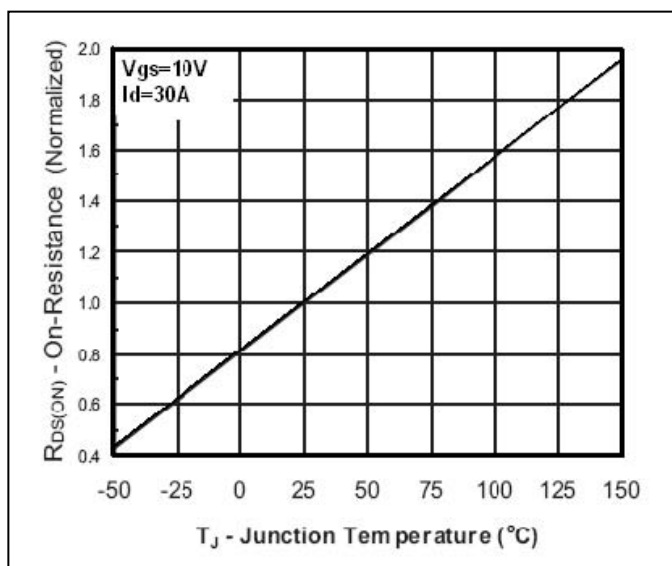
Switch Waveforms:



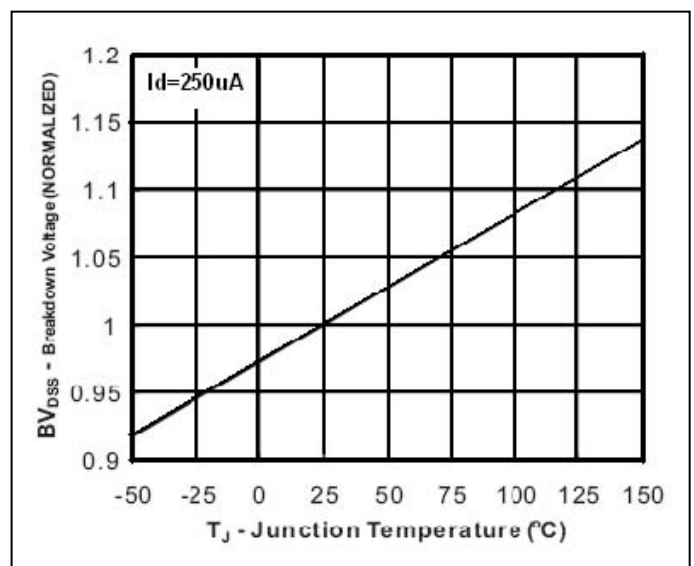
Transfer Characteristic



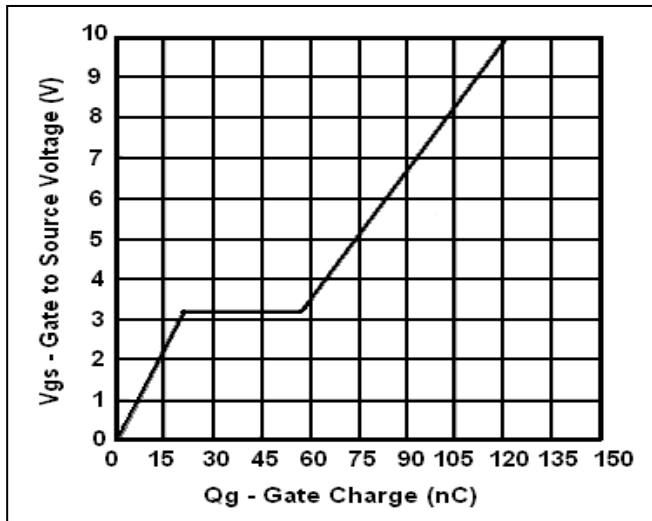
Capacitance



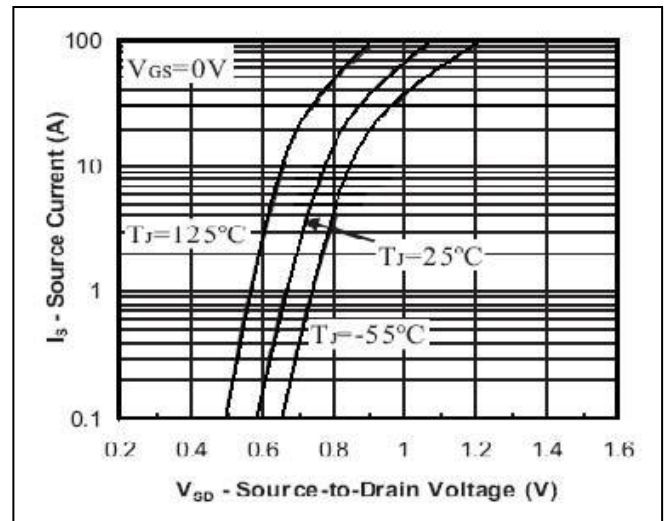
On Resistance vs. Junction Temperature



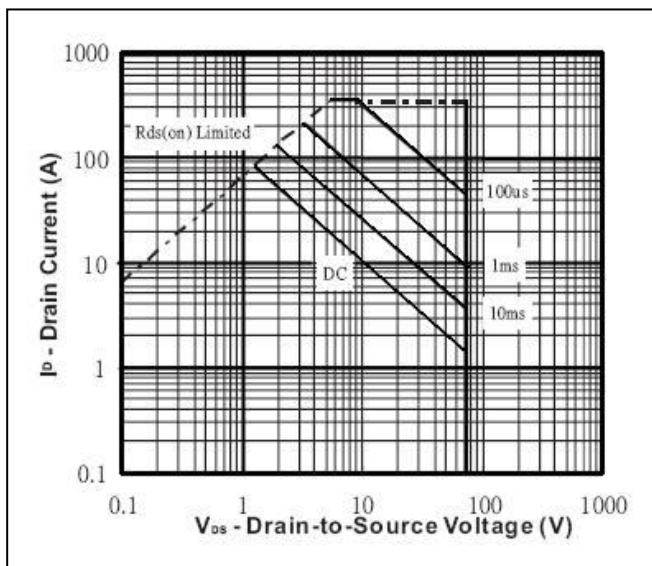
Breakdown Voltage vs. Junction Temperature



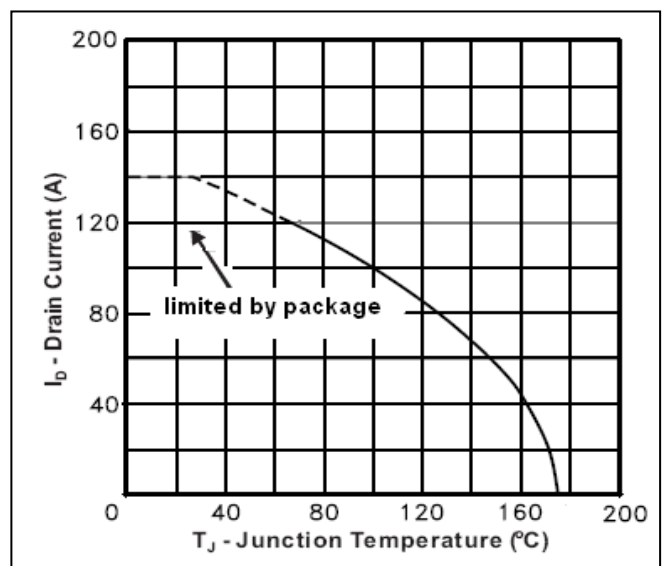
Gate Charge



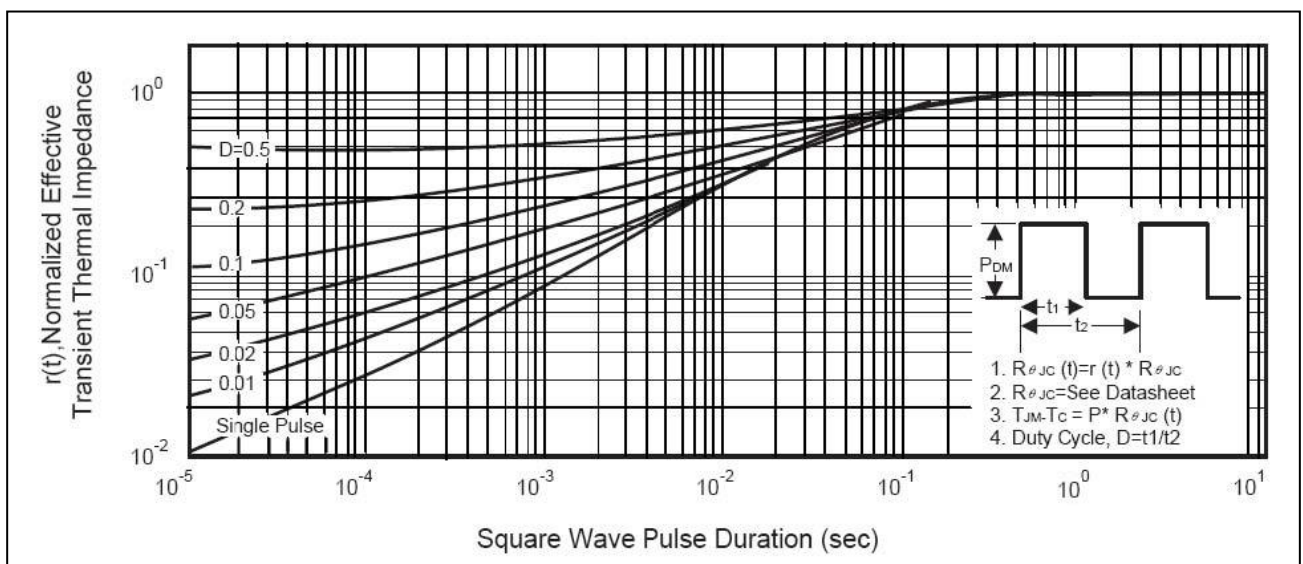
Source-Drain Diode Forward Voltage



Safe Operation Area

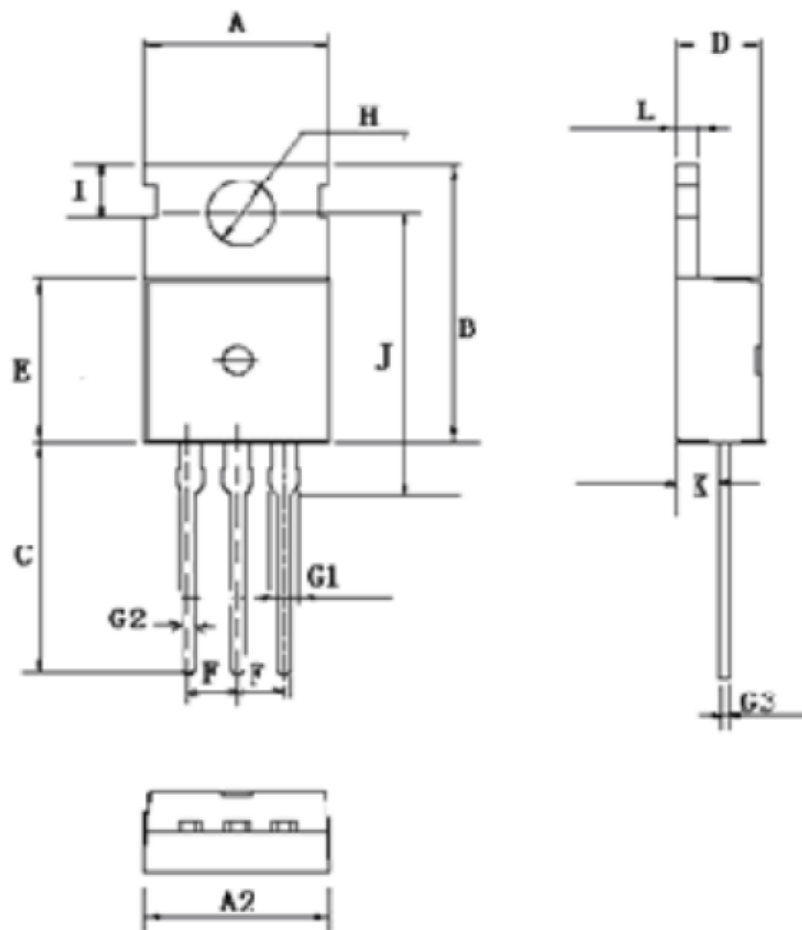


Max Drain Current vs. Junction Temperature



Transient Thermal Impedance Curve

TO220 MECHANICAL DATA:



TO-220 3L

图形对应符号	产品外形尺寸
A(mm)	9.66~10.28
A2(mm)	9.80~10.20
B(mm)	15.6~15.8
C(mm)	12.70~14.27
D(mm)	4.30~4.70
E(mm)	8.59~9.40
F(mm)	2.54 (nom)
G1(mm)	1.42~1.62
G2(mm)	0.70~0.95
G3(mm)	0.45~0.60
H(mm) dia.	3.50~3.70
I(mm)	2.7~2.9
J(mm)	15.70~16.25
K(mm)	2.20~2.90
L(mm)	1.15~1.40
M(mm)	0.5