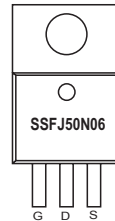
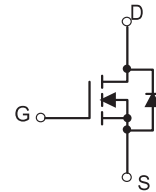


Main Product Characteristics

V_{DSS}	60V
$R_{DS(on)}$	17m Ω (typ.)
I_D	50A



TO-220-3L-C



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for power switching, hard switched and high frequency circuits, uninterruptible power supply applications
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The SSFJ50N06 utilizes the latest processing techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in power switching, hard switched and high frequency circuits, uninterruptible power supply applications.

Absolute Max Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	50	A
Pulsed Drain Current	I_{DM}	220	
Single Pulsed Avalanche Energy*	E_{AS}	115	mJ
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{stg}	-50 ~ +150	

* E_{AS} condition: $V_{DD}=50V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^{\circ}C$

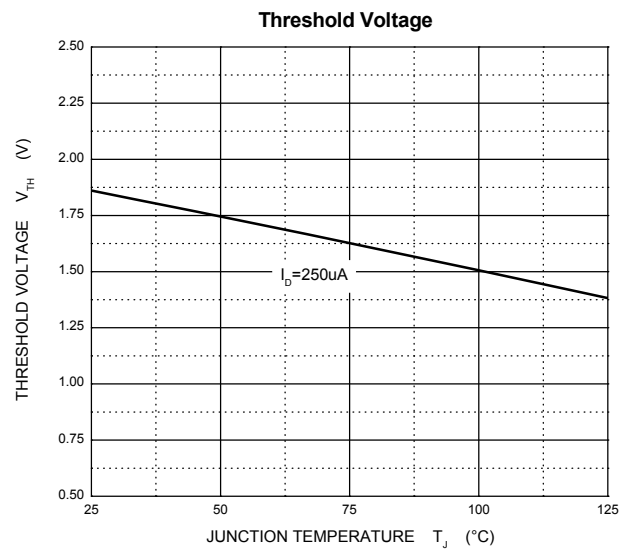
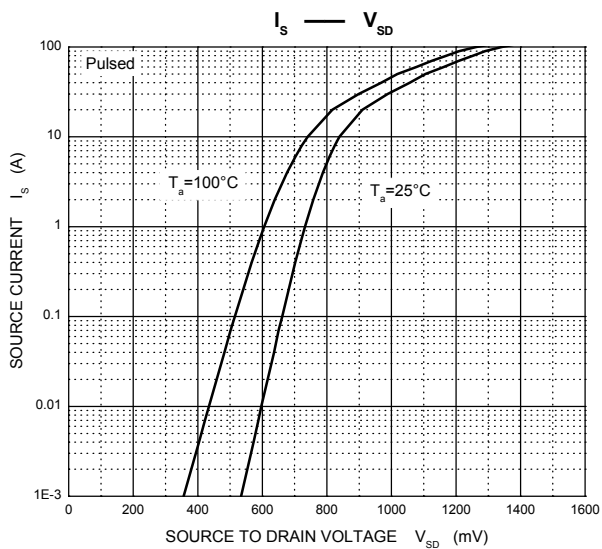
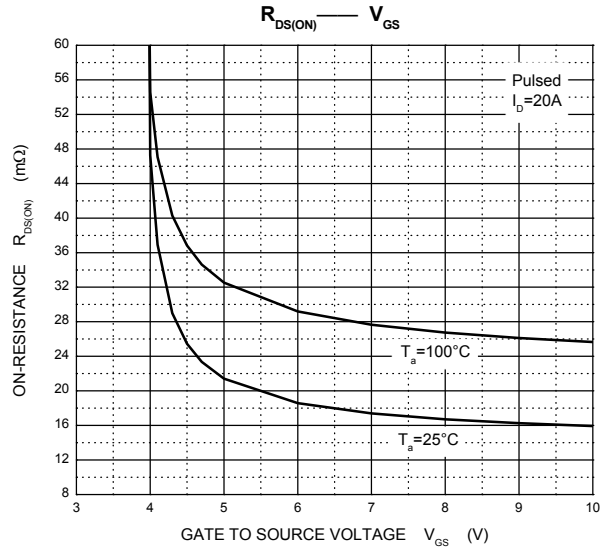
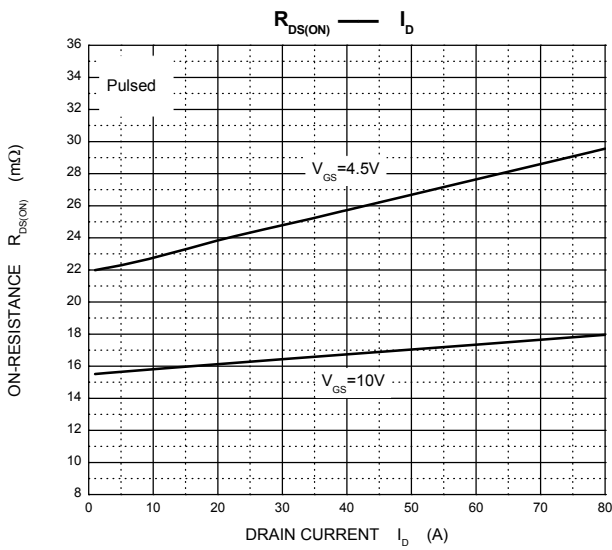
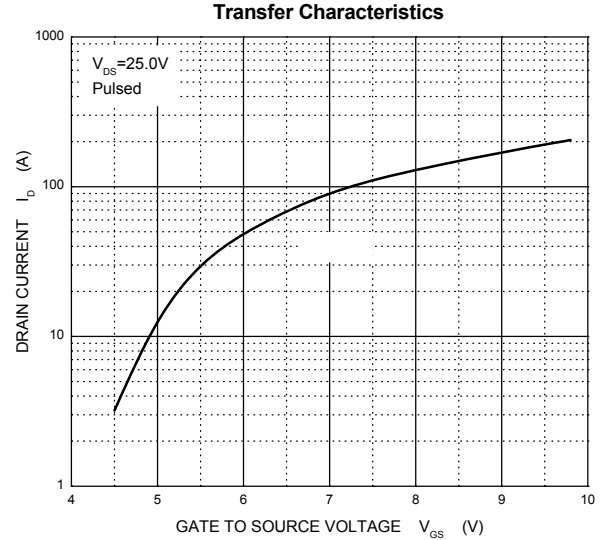
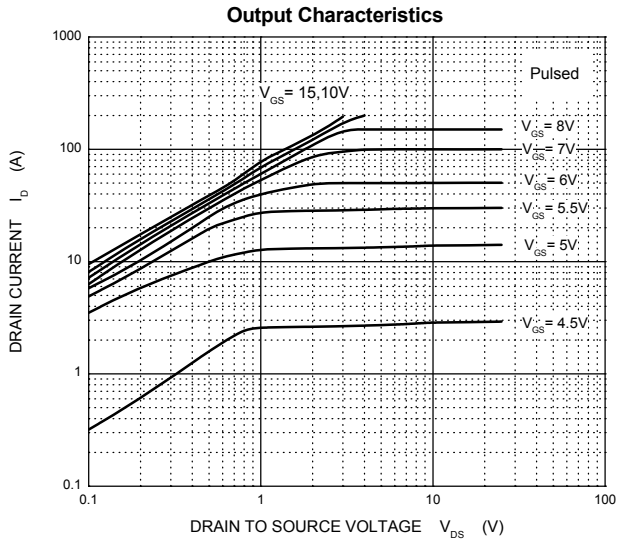
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
On Characteristics (note1)						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.5	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		17	20	m Ω
Forward Transconductance	g_{FS}	$V_{DS} = 25V, I_D = 20A$	24			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1MHz$		900		pF
Output Capacitance	C_{oss}			104		
Reverse Transfer Capacitance	C_{rss}			33		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V,$ $I_D = 50A$		30		nC
Gate-Source Charge	Q_{gs}			10		
Gate-Drain Charge	Q_{gd}			5		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 30V, I_D = 2A,$ $V_{GS} = 10V, R_G = 2.5\Omega,$ $R_L = 15\Omega$		25		ns
Turn-on Rise Time	t_r			5		
Turn-off Delay Time	$t_{d(off)}$			50		
Turn-off Fall Time	t_f			6		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage(note1)	V_{SD}	$V_{GS} = 0V, I_S = 40A$			1.2	V
Continuous Drain-Source Diode Forward Current	I_S				50	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				220	A

Notes:

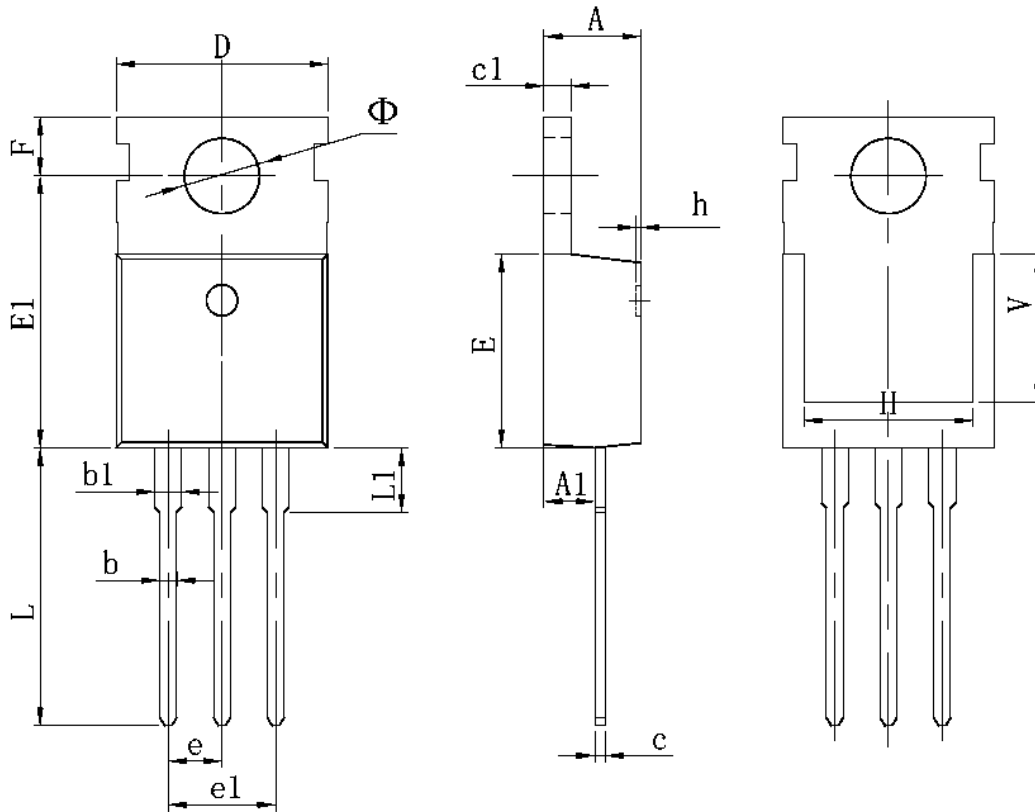
1. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise specified)



Mechanical Data

TO-220-3L-C



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	12.950	0.498	0.510
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	7.500 REF.		0.295 REF.	
Φ	3.400	3.800	0.134	0.150