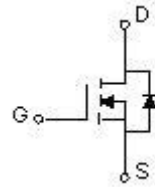


Main Product Characteristics

$V_{(BR)DSS}$	100V
$R_{DS(on)}$	0.14Ω@10V
I_D	9.6A



TO-252 (DPAK)



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for battery operated systems, load switching, power converters and other general purpose applications
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The SSFU10N10 utilizes the latest techniques to achieve high cell density, low on-resistance and low gate charge. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	9.6	A
Pulsed Drain Current	I_{DM}	38.4	
Single Pulsed Avalanche Energy ¹	E_{AS}	150	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	
Maximum lead temperature for soldering purposes , 1/8" from case for 5 seconds	T_L	260	

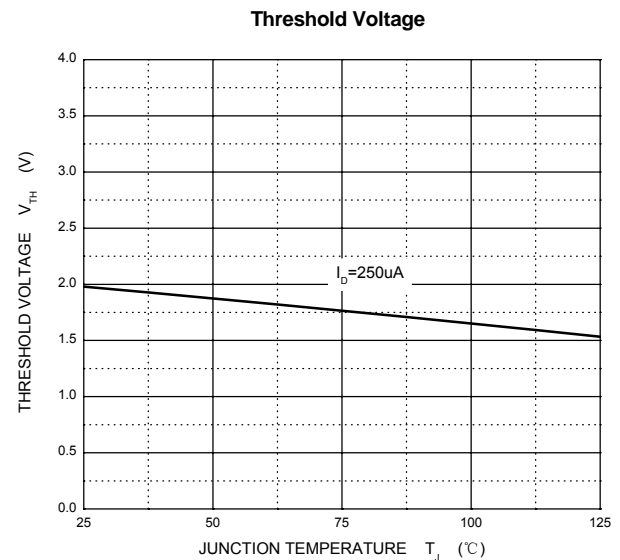
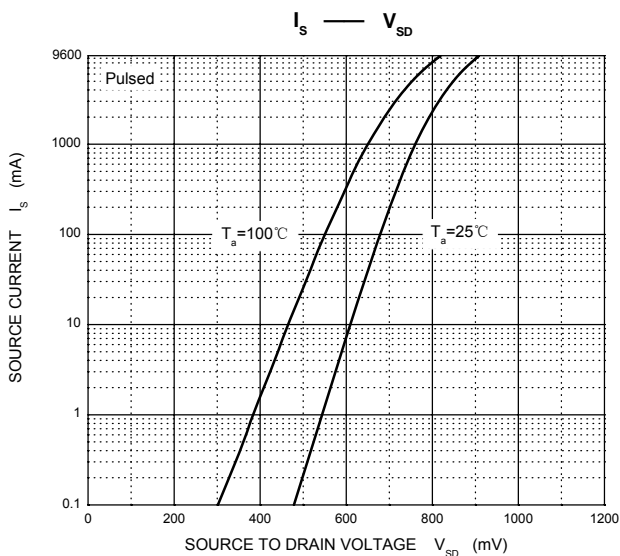
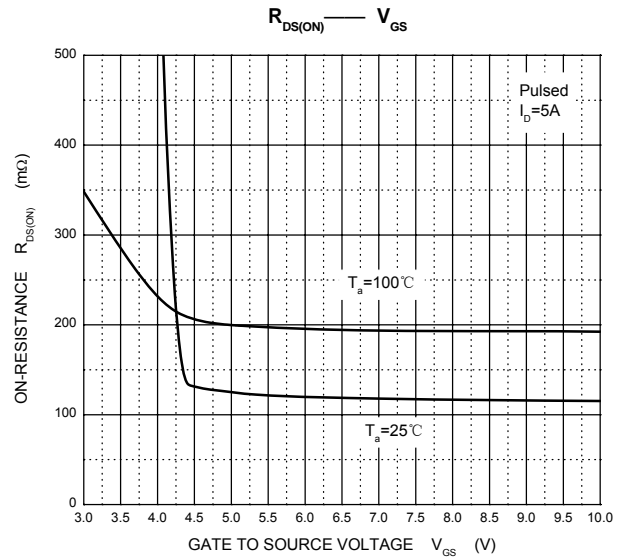
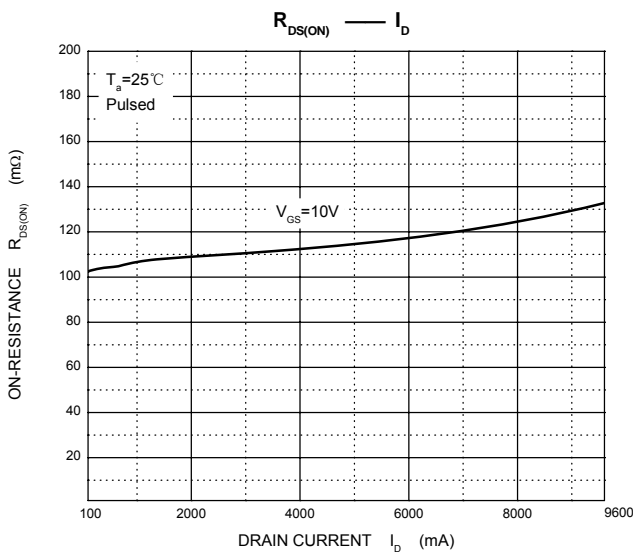
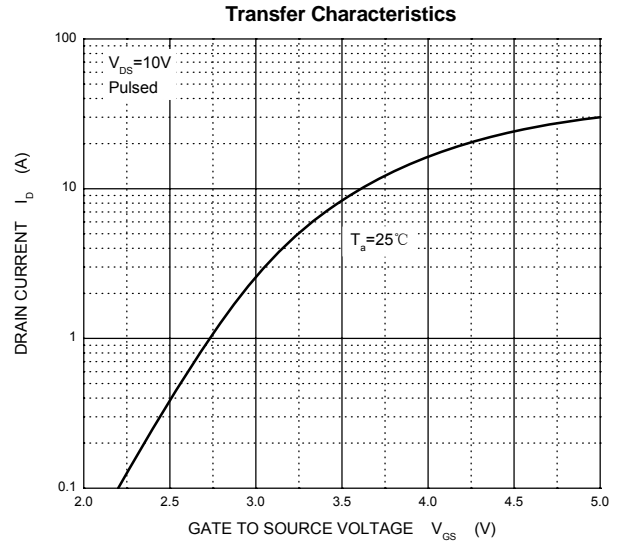
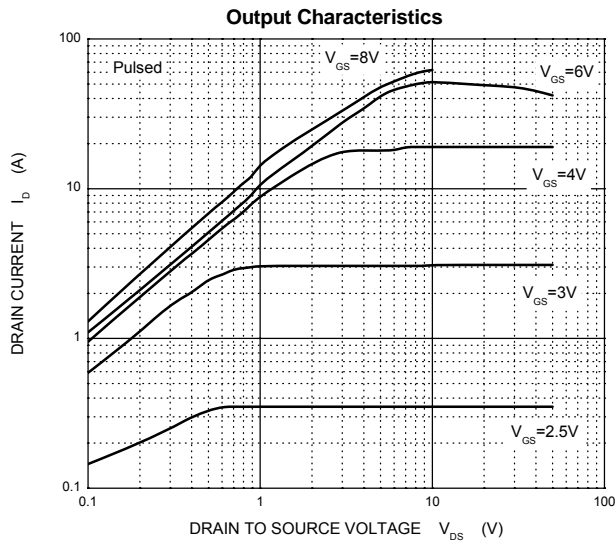
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100	---	---	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$	---	---	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	---	---	± 100	nA
On Characteristics²						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	2.0	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$	---	0.115	0.14	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$	---	690	---	pF
Output Capacitance	C_{oss}		---	120	---	
Reverse Transfer Capacitance	C_{rss}		---	90	---	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30V, R_G = 2.5\Omega, I_D = 2A, V_{GS} = 10V$	---	11	---	ns
Turn-On Rise Time	t_r		---	7.4	---	
Turn-Off Delay Time	$t_{d(off)}$		---	35	---	
Turn-Off Fall Time	t_f		---	9.1	---	
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 3A$	---	15.5	---	nC
Gate-Source Charge	Q_{gs}		---	3.2	---	nC
Gate-Drain Charge	Q_{gd}		---	4.7	---	nC
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage (note2)	V_{SD}	$V_{GS} = 0V, I_S = 9A$	---	---	1.2	V
Continuous Drain-Source Diode Forward Current	I_S		---	---	9.6	A
Pulsed Drain-Source Diode Forward Current	I_{SM}		---	---	38.4	A

Notes :

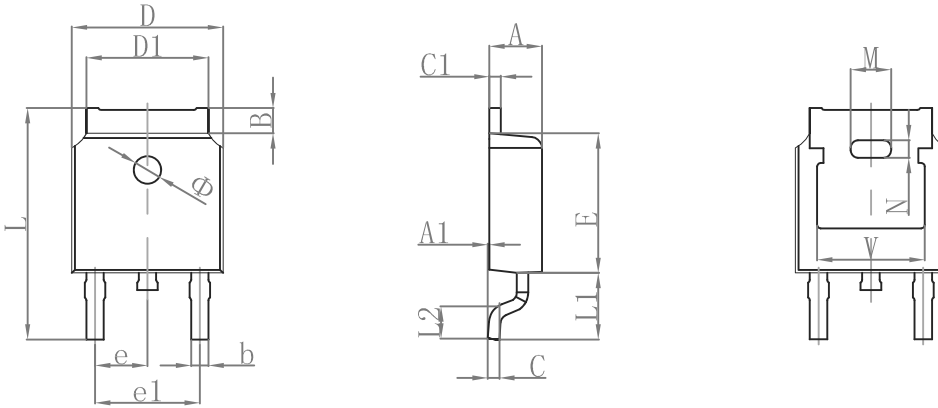
- $I_L = 7A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^{\circ}\text{C}.$
- Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Electrical and Thermal Characteristic Curves



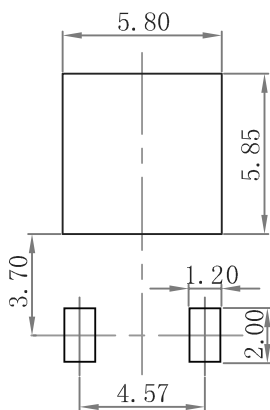
Package Outline Dimensions

TO-252-2L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778REF.		0.070REF.	
N	0.762REF.		0.018REF.	
L	9.800	10.400	0.386	0.409
L1	2.9REF.		0.114REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051

Suggested Pad Layout



Note:

1. Controlling dimension: In millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.