



**Solid State Devices, Inc.**

14830 Valley View Blvd \* La Mirada, CA 90638

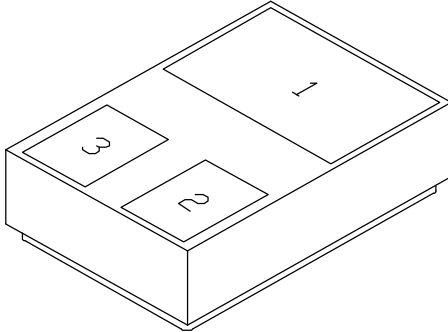
Phone: (562) 404-7855 \* Fax: (562) 404-1773

ssdi@ssdi-power.com \* [www.ssdi-power.com](http://www.ssdi-power.com)

# SFF110S.22

## 3.5 A / 100 Volts / 0.6 W N-Channel MOSFET Transistor

### DESIGNER'S DATA SHEET



SMD.22

#### Features:

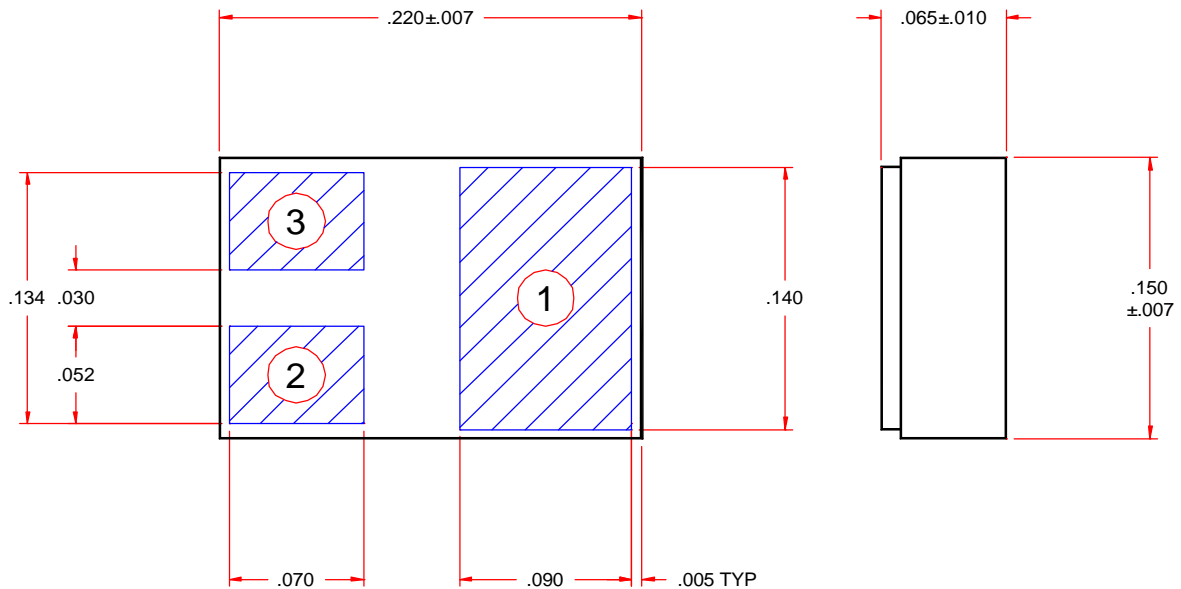
- Rugged Construction with Polysilicon Gate
- Small Footprint Hermetic Surface Mount Device with Excellent Thermal Properties
- Replacement/Enhancement for 2N6782
- TX, TXV, S-Level Screening Available
- Very Fast Switching Characteristics

Maximum Ratings	Symbol	Value	Units
Drain – Source Voltage	$V_{DS}$	100	Volts
Drain – Gate Voltage	$V_{DG}$	100	Volts
Gate – Source Voltage	$V_{GS}$	+/-20	Volts
Continuous Drain Current	$I_{D1}$	3.5	Amps
	$I_{D2}$	2.25	
Power Dissipation @ $T_C = 25^\circ C$	$P_D$	16.5	W
Power Dissipation @ $T_A = 25^\circ C$		0.8	
Operating & Storage Temperature	Top & Tstg	-55 to +150	$^\circ C$
Maximum Thermal Resistance Junction to Case and to Ambient	$R_{qJC}$	7.5 (typ 5)	$^\circ C/W$
	$R_{qJA}$	156.5	

Note1: Derated 60.6 mW/ $^\circ C$  above  $T_C = 25^\circ C$

Note2: Derated 6.4 mW/ $^\circ C$  above  $T_A = 25^\circ C$

#### PIN 1= COLLECTOR; PIN 2= EMITTER; PIN 3= BASE



NOTE: All specifications are subject to change without notification.  
SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: FT0015A

DOC



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Electrical Characteristics <sup>4/</sup>		Symbol	Min	Typ	Max	Units
<b>Drain – Source Breakdown Voltage</b>	$V_{GS} = 0 \text{ V}; I_D = 1 \text{ mA}$	$BV_{DSS}$	100	—	—	Volts
<b>Gate – Source Threshold Voltage</b>	$V_{DS} = 4 \text{ V}; I_D = 0.25 \text{ mA}$ $V_{DS} = 4 \text{ V}; I_D = 0.25 \text{ mA}; T_A = 125^\circ\text{C}$ $V_{DS} = 5 \text{ V}; I_D = 0.25 \text{ mA}; T_A = -55^\circ\text{C}$	$V_{GS(th)1}$ $V_{GS(th)2}$ $V_{GS(th)3}$	2.0 — —	3.0 2.0 4.0	4.0 — —	Volts
<b>Gate Leakage Current</b>	$V_{GS} = +/- 20 \text{ V}$ $V_{GS} = +/- 20 \text{ V}, T_A = 125^\circ\text{C}$	$I_{GSS1}$ $I_{GSS2}$	— —	5 10	100 —	nA
<b>Drain Leakage Current</b>	$V_{GS} = 0 \text{ V}; V_{DS} = 80 \text{ V}$ $V_{GS} = 0 \text{ V}; V_{DS} = 80 \text{ V}, T_A = 125^\circ\text{C}$	$I_{DSS1}$ $I_{DSS2}$	— —	0.02 5	25 —	mA
<b>Static Drain – Source On-State Resistance</b>	$V_{GS} = 10 \text{ V}, I_D = 2.25 \text{ A}$ $V_{GS} = 10 \text{ V}, I_D = 3.50 \text{ A}$	$R_{DS(on)1}$ $R_{DS(on)2}$	— —	0.55 0.58	0.60 0.61	Ohm
	$V_{GS} = 10 \text{ V}, I_D = 2.25 \text{ A}, T_A = 125^\circ\text{C}$	$R_{DS(on)3}$	—	1.05	—	
<b>Forward Voltage of the Source – Drain Diode</b>	$I_D = 3.5 \text{ A}$	$V_{SD}$	—	1.2	1.5	Volts
<b>Switching Time Test: Turn-on Delay Time Rise Time Turn-off Delay Time Fall Time</b>	$I_D = 3.5 \text{ A}, V_{GS} = 10 \text{ V},$ $R_G = 7.5 \text{ ohm}, V_{DD} = 50 \text{ V}$	$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	— — — —	— — — —	15 25 25 20	ns
<b>Gate Charge Test: On-State Gate Charge Gate – Source Charge Gate – Drain Charge</b>	$V_{GS} = 10 \text{ V}, V_{DS} = 50 \text{ V}$	$Q_{g(on)}$ $Q_{gs}$ $Q_{gd}$	— — —	— — —	6.55 1.61 3.46	nC
<b>Reverse Recovery Time</b>	$V_{DD} = 50 \text{ V}, I_D = 3.5 \text{ A},$ $dI/dt = 100 \text{ A}/\mu\text{s}$	$t_{rr}$	—	—	180	ns
<b>Capacitance Test: Input Capacitance Output Capacitance Reverse Transfer Cap.</b>	$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$	$C_{iss}$ $C_{oss}$ $C_{rss}$	— — —	180 85 15	— — —	pF

**NOTES:**

\* Pulse Test: Pulse Width = 300  $\mu\text{sec}$ , Duty Cycle = 2%  
 1/ For Ordering Information, Price, Availability Contact Factory.

2/ Screening per MIL-PRF-19500

3/ For Package Outlines Contact Factory.

4/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

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