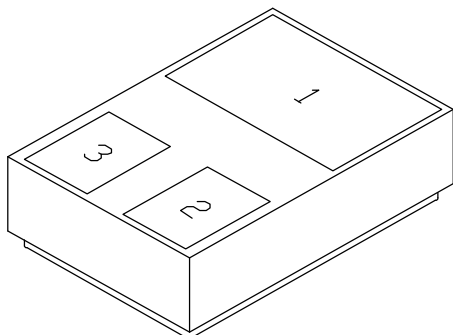



Solid State Devices, Inc.

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DESIGNER'S DATA SHEET

SMD.22

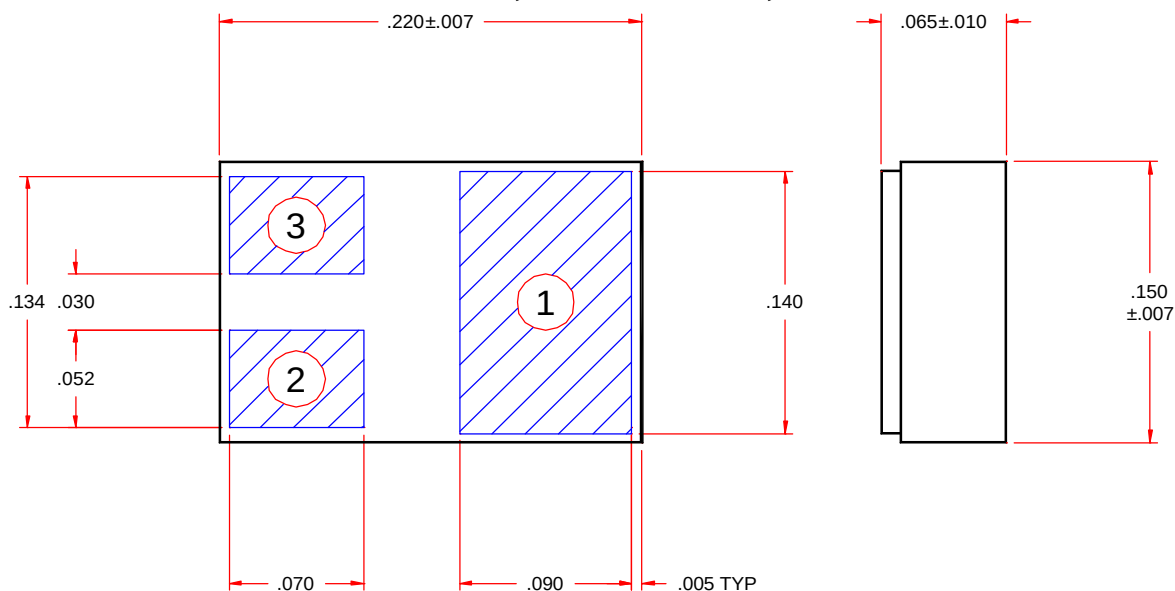
SFF110S.22

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

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} I_{D2}	3.5 2.25	Amps
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	R_{qJC}	7.5 (typ 5)	$^\circ C/W$
Junction to Case and to Ambient	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
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DOC

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SFF110S.22

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

NOTES:* Pulse Test: Pulse Width = 300 μs , 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.