



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, CA 90638

Phone: (562) 404-4470 * Fax: (562) 404-1773

ssdi@ssdi-power.com * www.ssdi-power.com

SFF12P10S.22

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFF12P10

Screening ^{2/}

— = Not Screened

TX = TX Level

TXV = TXV Level

S = S Level

Package

S.22 = SMD.22

-12 AMP

P-Channel POWER MOSFET

-100 Volts, 0.160 Ω

Features:

- Fast Switching Speed
- Low Total Gate Charge
- Simple Drive
- Ceramic, Surface Mount Package
- Hermetically Sealed
- TX, TXV, and Space Level Screening Available

Maximum Ratings ^{3/}	Symbol	Value	Unit
Drain – Source Voltage	V_{DS}	-100	V
Gate – Source Voltage	V_{GS}	+20	V
Continuous Drain Current (internal construction limited) $V_{GS} = -10$ V	$T_C = 25^\circ\text{C}$ I_{D1}	-12.0	A
	$T_J = 125^\circ\text{C}$ I_{D2}	-4.0	A
Pulsed Drain Current	$T_P = 10 \mu\text{s}$ I_{DM}	-125	A
Power Dissipation	$T_C = 25^\circ\text{C}$ P_D	20	W
Linear Derating Factor		167	mW/ $^\circ\text{C}$
Avalanche Current, Single Pulse	I_{AS}	-8.5	A
Repetitive Avalanche Energy, Single Pulse ^{4/}	E_{AS}	18	mJ
Operating & Storage Temperature	$T_{OP} \text{ \& } T_{STG}$	-55 to +150	$^\circ\text{C}$
Thermal Resistance	$R_{\theta JC}$	6	$^\circ\text{C/W}$

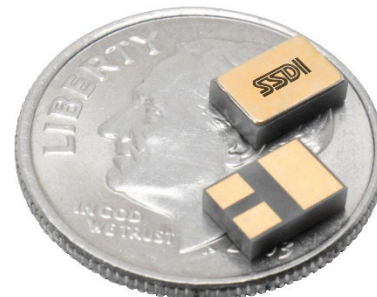
NOTES: *Pulsed per MIL-STD-750.

SMD.22

^{1/} For ordering information, price, and availability - contact factory.

^{2/} Screening based on MIL-PRF-19500. Screening flows available on request.

^{3/} Unless otherwise specified, all electrical characteristics @ 25°C.



*Dime used for size reference

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

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Electrical Characteristics ^{3/}	Symbol	Min	Typ	Max	Unit
Drain to Source Breakdown Voltage $V_{GS} = 0 \text{ V}, I_D = -250 \mu\text{A}$	BV_{DSS}	-100	-110	—	V
Temperature Coefficient of Breakdown Voltage Reference to 25°C, $I_D = -0.25 \text{ mA}$	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	—	-54	—	mV/°C
Drain to Source On State Resistance* $V_{GS} = -6 \text{ V}, I_D = -1.6 \text{ A}$ $V_{GS} = -10 \text{ V}, I_D = -2.5 \text{ A}$ $V_{GS} = -10 \text{ V}, I_D = -12 \text{ A}$ $V_{GS} = -10 \text{ V}, I_D = -20 \text{ A}$ $V_{GS} = -10 \text{ V}, I_D = -12 \text{ A}, T_J = 125^\circ\text{C}$	$R_{DS(on)}$	— — — — —	0.160 0.135 0.145 0.170 0.230	0.175 — 0.160 — 0.250	Ω
Gate Threshold Voltage $V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ $T_J = -55^\circ\text{C}$	$V_{GS(th)}$	-2.0 -1.5 —	-3.0 -2.6 -3.6	-4.0 — -4.5	V
Gate Threshold Voltage Coefficient $V_{DS} = V_{GS}, I_D = -250 \mu\text{A}$	$\frac{\Delta V_{GS}}{\Delta T_J}$	—	-5	—	mV/°C
Forward Transconductance $V_{DS} = -10 \text{ V}, I_D = -15 \text{ A}$	g_{fs}	5	9.5	—	S
Zero Gate Voltage Drain Current $V_{DS} = -80 \text{ V}, V_{GS} = 0 \text{ V}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	I_{DSS}	— —	-0.025 -0.4	-1.0 -100	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse $V_{GS} = -20 \text{ V}$ $V_{GS} = 20 \text{ V}$	I_{GSS}	— —	-20 -40	-100 100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge $V_{GS} = -10.0 \text{ V}$ $V_{DS} = -50 \text{ V}$ $I_D = -12 \text{ A}$	$Q_{g(on)}$ Q_{gs} Q_{gd}	— — —	8 5 2	15 9 9	nC
Total Gate Charge Gate to Source Charge Gate to Drain Charge $V_{GS} = -6.0 \text{ V}$ $V_{DS} = -50 \text{ V}$ $I_D = -2.5 \text{ A}$	$Q_{g(on)}$ Q_{gs} Q_{gd}	— — —	8 4 2	— — —	nC
Turn on Delay Time Rise Time Turn off Delay Time Fall Time $V_{DS} = -50 \text{ V}$ $V_{GS} = -10 \text{ V}$ $I_D = -12 \text{ A}$ $R_G = 2.5 \Omega$	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	— — — —	18 7 21 10	35 15 50 20	nsec
Input Capacitance Output Capacitance Reverse Transfer Capacitance $V_{GS} = 0 \text{ V}$ $V_{DS} = -50 \text{ V}$ $f = 1 \text{ MHz}$	C_{iss} C_{oss} C_{rss}	— — —	620 120 3	— — —	pF
Diode Forward Voltage $I_S = -12 \text{ A}, V_{GS} = 0 \text{ V}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	V_{SD}	— —	-1.3 1.23	-1.6 —	V
Diode Reverse Recovery Time Reverse Recovery Charge $T_J = 25^\circ\text{C},$ $I_F = -10 \text{ A},$ $di/dt = -100 \text{ A}/\mu\text{sec}$	t_{rr} I_{RM} Q_{rr}	— — —	55 4 105	80 — —	nsec A nC

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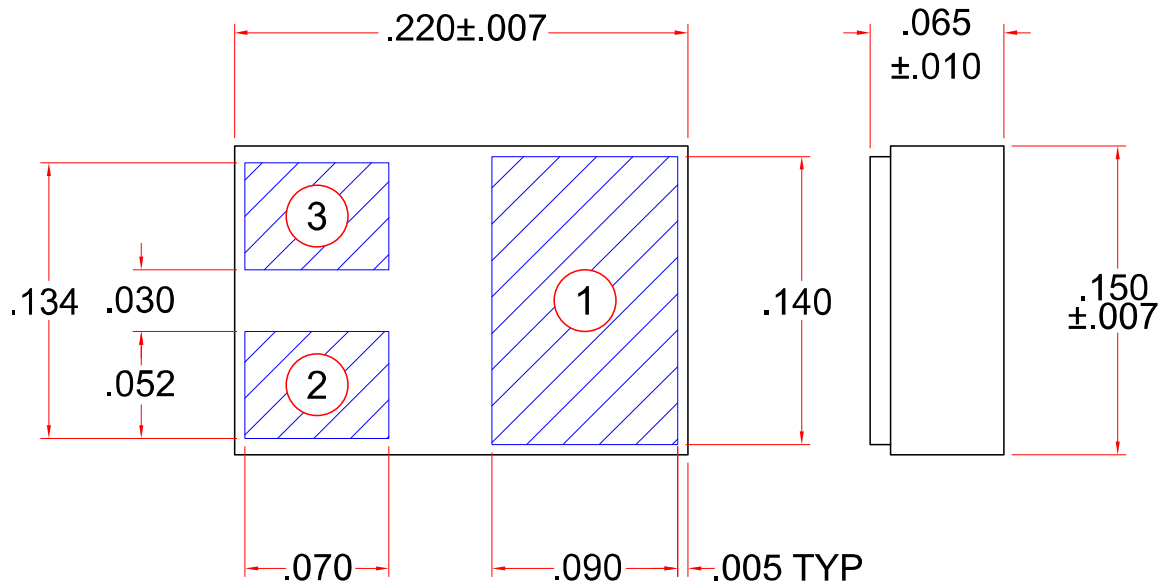


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SFF12P10S.22

PACKAGE OUTLINE: SMD.22 (S.22)



Available Part Numbers:

SFF12P10S.22

PIN ASSIGNMENT (Standard)

Package	Drain	Source	Gate
SMD.22 (S.22)	Pin 1	Pin 2	Pin 3

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