



Solid State Devices, Inc.

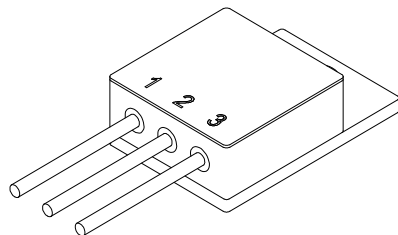
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DESIGNER'S DATA SHEET

TO-257



SFF20P10J

20 AMP /100 Volts
200 mΩ
P-Channel MOSFET

Features:

- Rugged construction with polysilicon gate
- Low ON-resistance and high transconductance
- Excellent high temperature stability
- Hermetically Sealed, Isolated Package
- Low Total Gate Charge
- Fast Switching
- replacement for IRF9140 types
- TX, TXV, S-Level screening available

Maximum Ratings	Symbol	Value	Units
Drain - Source Voltage	V_{DSS}	-100	V
Gate - Source Voltage	V_{GS}	± 20	V
Max. Continuous Drain Current (package limited)	I_{D1} I_{D2}	20 11	A
	@ $T_C = 25^\circ C$ @ $T_C = 100^\circ C$		
Max. Avalanche current	I_{AR}	20	A
	@ $L = 0.1$ mH		
Repetitive Avalanche Energy	E_{AR}	12.5	mJ
	@ $L = 0.1$ mH		
Single Pulse Avalanche Energy	E_{AS}	500	mJ
	@ $L = 0.1$ mH		
Total Power Dissipation	P_D	100	W
	@ $T_C = 25^\circ C$		
Operating & Storage Temperature	$T_{OP} \text{ \& } T_{STG}$	-55 to +150	$^\circ C$
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	1.25	$^\circ C/W$

PACKAGE OUTLINE:

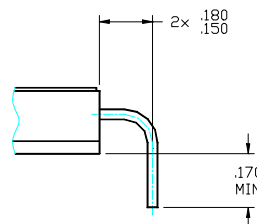
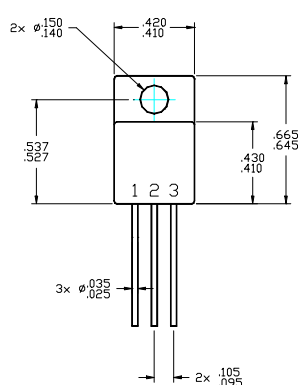
TO-257 (J)

PINOUT:

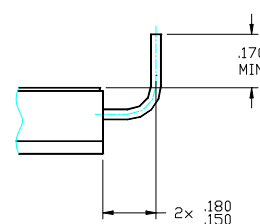
PIN 1: DRAIN

PIN 2: SOURCE

PIN 3: GATE



SUFFIX JDB



SUFFIX JUB

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

DATA SHEET #: FT0012A

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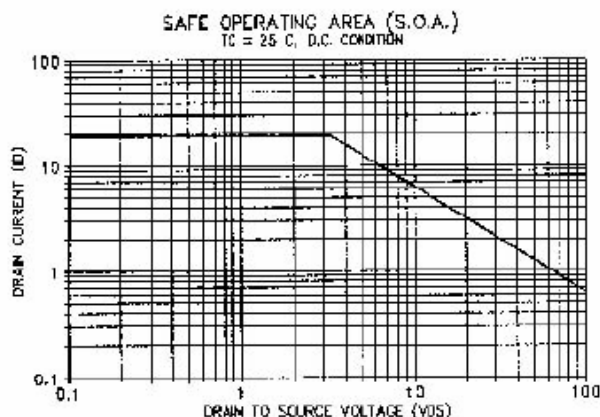
SFF20P10J

Electrical Characteristics ^{4/}		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	$V_{GS} = 0V, I_D = 1\text{ mA}$	BV_{DSS}	-100	—	—	V
Drain to Source On State Resistance	$V_{GS} = 10V, I_D = 11A, T_j = 25^\circ C$ $V_{GS} = 10V, I_D = 20A, T_j = 25^\circ C$	$R_{DS(on)}$	— —	140 150	200 230	$m\Omega$
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(th)}$	-2.0	—	-4.0	V
Gate to Source Leakage	$V_{GS} = \pm 20V$	I_{GSS}	—	5	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS} = -80V, V_{GS} = 0V, T_j = 25^\circ C$ $V_{DS} = -80V, V_{GS} = 0V, T_j = 125^\circ C$	I_{DSS}	— —	0.01 0.75	25 250	μA μA
Forward Transconductance	$V_{DS} = 10V\text{ min}, I_D = 11A, T_j = 25^\circ C$	g_{fs}	6	55	—	Mho
Total Gate Charge	$V_{GS} = 10V$	Q_g	—	55	70	nC
Gate to Source Charge	$V_{DS} = 50V$	Q_{gs}	—	12	15	
Gate to Drain Charge	$I_D = 18A$	Q_{gd}	—	29	45	
Turn on Delay Time	$V_{GS} = 10V$	$t_{d(on)}$	—	30	35	nsec
Rise Time	$V_{DS} = 50V$	t_r	—	27	85	
Turn off Delay Time	$I_D = 18A$	$t_{d(off)}$	—	70	85	
Fall Time	$R_G = 9.1\Omega$	t_f	—	45	65	
Diode Forward Voltage	$I_F = 20A, V_{GS} = 0V$	V_{SD}	—	1.90	4.20	V
Diode Reverse Recovery Time	$I_F = 20A, di/dt = 100A/\mu sec$	t_{rr}	—	270	350	nsec
Peak Reverse Recovery Current		Q_{rr}	—	2	3.6	μC
Reverse Recovery Charge						
Input Capacitance	$V_{GS} = 0V$	C_{iss}	—	1400	1650	pF
Output Capacitance	$V_{DS} = 25V$	C_{oss}	—	600	740	
Reverse Transfer Capacitance	$f = 1\text{ MHz}$	C_{rss}	—	180	260	

NOTES:

* Pulse Test: Pulse Width = 300 μ sec, Duty Cycle = 2%.

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



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