



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

DESIGNER'S DATA SHEET

Part Number / Ordering Information^{1/}

SFF440

L

Screening^{2/}

— = Not Screened

TX = TX Level

TXV = TXV Level

S = S Level

Package^{3/}

J = TO-257

SFF440J

8 AMP
N-Channel
Power MOSFET
500 Volts
0.86 Ω

Features:

- Rugged construction with polysilicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed package
- Low inductance leads
- TX, TXV, S-Level screening available
- Replaces: IRF440 types

Maximum Ratings	Symbol	Value	Units
Drain - Source Voltage	V_{DS}	500	V
Gate - Source Voltage	V_{GS}	± 20	V
Max. Continuous Drain Current (package limited) @ 25°C	I_D	6.9	A
Operating & Storage Temperature	$T_{OP} \text{ \& } T_{STG}$	-55 to +150	°C
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	2	°C/W
Total Power Dissipation	P_D	@ $T_C = 25^\circ\text{C}$ 63 @ $T_C = 55^\circ\text{C}$ 48	W

NOTES:

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

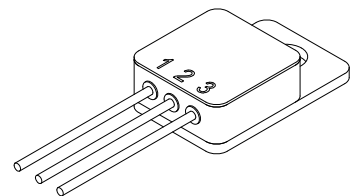
1/ For ordering information, price, and availability - contact factory.

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

3/ Maximum current limited by package configuration

4/ Unless otherwise specified, all electrical characteristics @25°C.

TO-257



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 ^{4/}		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250 \mu A$	BV_{DSS}	500	570	—	V
Drain to Source On State Resistance	$V_{GS} = 10V, I_D = 60\% \text{ Rated } I_D$	$R_{DS(on)}$	—	0.65	0.86	Ω
On State Drain Current	$V_{DS} > I_{D(on)} \times R_{DS(on)} \text{ Max}, V_{GS} = 10V$	$I_{D(on)}$	8	12	—	A
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	$V_{GS(th)}$	2.0	3.2	4.0	V
Forward Transconductance	$V_{DS} \geq 50V, I_D = 60\% \text{ Rated } I_D$	g_{fs}	4.9	6	—	S(U)
Zero Gate Voltage Drain Current	$V_{DS} = \text{max rated voltage}, V_{GS} = 0V$ $V_{DS} = 80\% \text{ Rated } V_{DS}, V_{GS} = 0V, T_A = 125^\circ C$	I_{DSS}	— —	0.015 5	25 250	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated V_{GS}	I_{GSS}	— —	— —	100 -100	nA
Total Gate Charge	$V_{GS} = 10V$	Q_g	—	30	50	nC
Gate to Source Charge	80% Rated V_{DS}	Q_{gs}	—	8	10	
Gate to Drain Charge	$I_D = 8A$	Q_{gd}	—	12	25	
Turn on Delay Time	$V_{DD} = 50\%$	$t_{d(on)}$	—	30	40	nsec
Rise Time	Rated V_{DS}	t_r	—	40	60	
Turn off Delay Time	$I_D = 8A$	$t_{d(off)}$	—	62	74	
Fall Time	$R_G = 9.1\Omega$ $R_D = 30\Omega$	t_f	—	30	40	
Diode Forward Voltage	$I_S = \text{Rated } I_D, V_{GS} = 0V, T_J = 25^\circ C$	V_{SD}	—	0.85	1.2	V
Diode Reverse Recovery Time	$T_J = 25^\circ C, I_F = \text{Rated } I_D, di/dt = 100A/\mu sec$	t_{rr}	210	900	970	nsec
Reverse Recovery Charge		Q_{rr}	2	7.7	8.9	μC
Input Capacitance	$V_{GS} = 0V$	C_{iss}	—	1450	—	pF
Output Capacitance	$V_{DS} = 25V$	C_{oss}	—	180	—	
Reverse Transfer Capacitance	$f = 1 \text{ MHz}$	C_{rss}	—	40	—	

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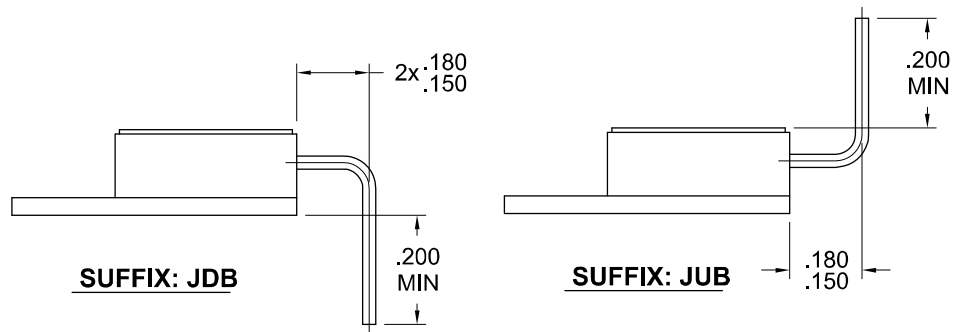
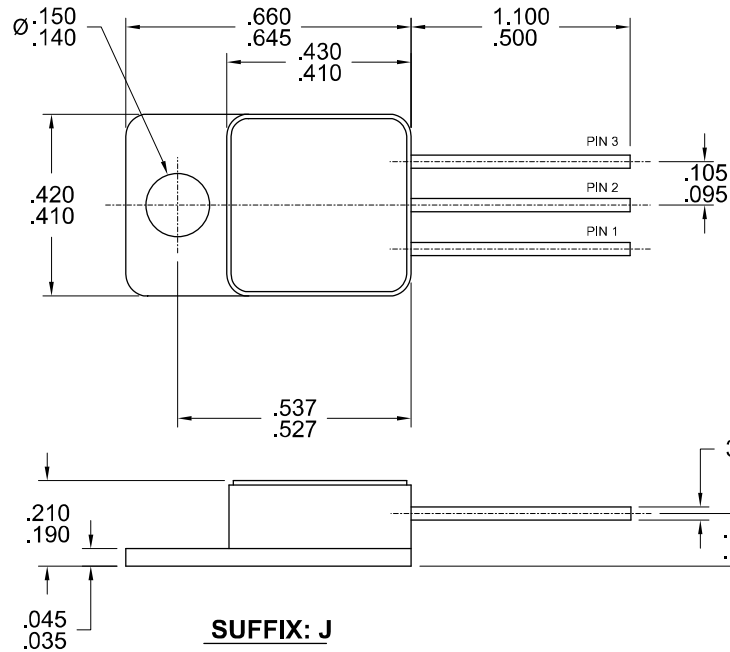


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SFF440J

TO-254 (J)



PIN ASSIGNMENT (Standard)

Package	Drain	Source	Gate
TO-257 (J)	Pin 1	Pin 2	Pin 3

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