



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/}

SFF240J

Screening ^{2/}
 — = Not Screened
 TX = TX Level
 TXV = TXV Level
 S = S Level

Pin Configuration
 — = Normal
 R = Reverse

Lead Bend
 — = Straight
 UB = Up Bend
 DB = Down Bend

SFF240J SFF240JR

**15 AMP, 200 Volts, 0.18 Ω
N-Channel Power MOSFET**

Features:

- Rugged construction with polysilicon gate
- Low $R_{DS(on)}$ 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
- Available with Ceramic Seal. Consult Factory
- Hermetically Sealed Isolated Power Package
- TX, TXV, S-Level screening available
- Replaces: IRFY240 and 2N7219 Types

Maximum Ratings	Symbol	Value	Units
Drain - Source Voltage	V_{DS}	200	V
Gate - Source Voltage	V_{GS}	± 20 ± 30	V
Max. Continuous Drain Current (package limited) @ 25°C	I_{D1}	15	A
Max. Instantaneous Drain Current (T_J limited) $T_C = 25^\circ\text{C}$	I_{D2}	16	A
Max. Avalanche current @ $L = 0.1 \text{ mH}$	I_{AS}	15	A
Single Pulse Avalanche Energy @ $L = 0.1 \text{ mH}$	E_{AS}	450	mJ
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ @ $T_C = 55^\circ\text{C}$	P_D	73.5 56	W
Operating & Storage Temperature	$T_{OP} \text{ \& } T_{STG}$	-55 to +150	°C
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	1.7	°C/W

NOTES:

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

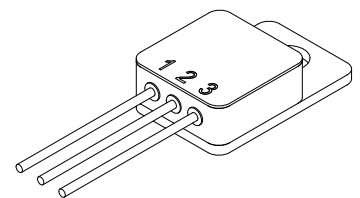
^{1/} For ordering information, price, and availability - contact factory.

^{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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SFF240J

SFF240JR

Electrical Characteristics ^{4/}		Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$	BV_{DSS}	200	220	—	V
Drain to Source On State Resistance	$V_{GS} = 10\text{ V}, I_D = 11\text{ A}, T_J = 25^\circ\text{C}$	$R_{DS(on)}$	—	0.13	0.18	Ω
	$V_{GS} = 10\text{ V}, I_D = 11\text{ A}, T_J = 125^\circ\text{C}$		—	0.25	0.48	
	$V_{GS} = 10\text{ V}, I_D = 18\text{ A}, T_J = 25^\circ\text{C}$		—	0.135	0.25	
On State Drain Current	$V_{DS} > I_{D(on)} \times R_{DS(on)} \text{ Max}, V_{GS} = 10\text{ V}, T_J = 25^\circ\text{C}$	$I_{D(on)}$	15	—	—	A
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}, T_J = 25^\circ\text{C}$	$V_{GS(th)}$	2.0	3.0	4.0	V
	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}, T_J = 125^\circ\text{C}$		1.0	2.2	—	
	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}, T_J = -55^\circ\text{C}$		—	3.5	—	
Forward Transconductance	$V_{DS} \geq 10\text{ V}, I_{DS} = 10\text{ A}, T_J = 25^\circ\text{C}$	g_{fs}	6.5	10	—	S (Ω)
Zero Gate Voltage Drain Current	$V_{DS} = \text{max rated voltage}, V_{GS} = 0\text{ V}, T_J = 25^\circ\text{C}$ $V_{DS} = \text{max rated voltage}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$	I_{DSS}	— —	0.02 10	25 250	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated $V_{GS}, T_J = 25^\circ\text{C}$	I_{GSS1}	— —	10 10	100 -100	nA
	At rated $V_{GS}, T_J = 125^\circ\text{C}$	I_{GSS2}	— —	10 10	200 -200	
Total Gate Charge	$V_{GS} = 10\text{ V}$	Q_g	—	50	60	nC
Gate to Source Charge	$V_{DS} = 100\text{ V}$	Q_{gs}	—	12	15	
Gate to Drain Charge	Rated I_D	Q_{gd}	—	30	38	
Turn on Delay Time	$V_{DD} = 100\text{ V}$	$t_{d(on)}$	—	20	30	nsec
Rise Time	$I_D = 11\text{ A}$	t_r	—	40	90	
Turn off Delay Time	$R_G = 9.1\text{ }\Omega$	$t_{d(off)}$	—	55	75	
Fall Time	$V_{GS} = 10\text{ V}$	t_f	—	30	50	
Diode Forward Voltage	$I_S = \text{Rated } I_D, V_{GS} = 0\text{ V}, T_J = 25^\circ\text{C}$	V_{SD}	—	—	1.5	V
Diode Reverse Recovery Time	$T_J = 25^\circ\text{C}, I_F = \text{Rated } I_D, di/dt = 100\text{ A}/\mu\text{sec}$	t_{rr}	—	290	500	nsec
Reverse Recovery Charge		Q_{rr}	—	2.6	5.3	μC
Input Capacitance	$V_{GS} = 0\text{ V}$	C_{iss}	—	1200	—	pF
Output Capacitance	$V_{DS} = 25\text{ V}$	C_{oss}	—	450	—	
Reverse Transfer Capacitance	$f = 1\text{ MHz}$	C_{rss}	—	150	—	

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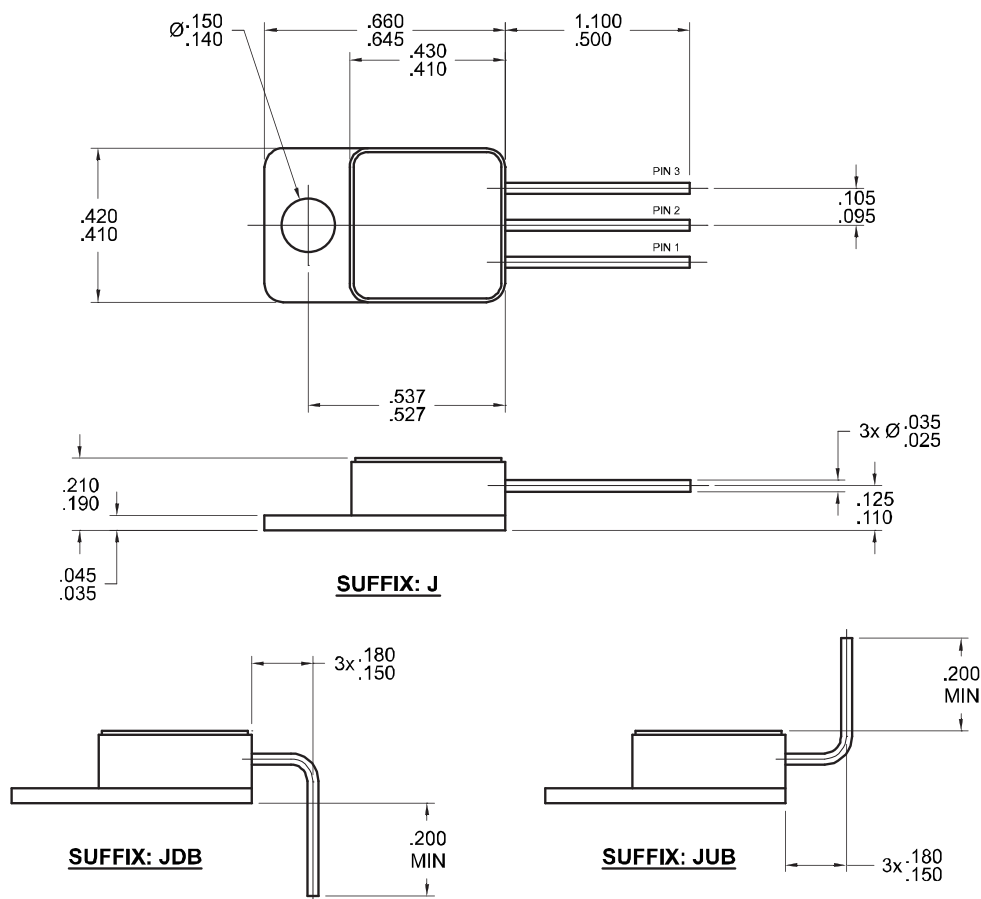
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SFF240J SFF240JR

TO-257 (J)



PIN ASSIGNMENT (Standard)

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

Available Part Numbers:

SFF240J, SFF240JR, SFF240JUB, SFF240JUBR, SFF240JDB, SFF240JDBR

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