



Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, CA 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
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SFF6661/39

0.86 AMP N-CHANNEL MOSFET 90 Volts, 4Ω

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFF6661 /39



Screening ^{2/}

- = Not Screened
- TX = TX Level
- TXV = TXV Level
- S = S Level

Package

/39 = TO-39

Features:

- Rugged construction
- Low RDS(on) and high transconductance
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed package
- Very fast switching speed
- TX, TXV, S-Level screening available ^{2/}
- Replacement for 2N6661

Maximum Ratings ^{3/}	Symbol	Value	Units
Drain - Source Voltage	V _{DS}	90	V
Gate - Source Voltage	V _{GS}	±20	V
Max. Continuous Drain Current (T _J = 150°C)	I _D	T _C = 25°C	0.86
		T _C = 100°C	0.54
Max. Instantaneous Drain Current (T _j limited)	I _{DM}	3	A
Total Power Dissipation	P _D	T _C = 25°C	6.25
		T _A = 25°C	0.725
Operating & Storage Temperature	T _{OP} & T _{STG}	-65 to +150	°C
Maximum Thermal Resistance (Junction to Ambient)	R _{θJA}		170
		R _{θJC}	20
(Junction to Case)			°C /W

NOTES:

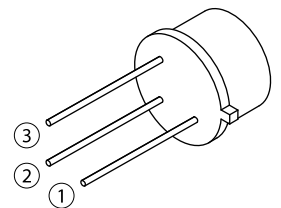
*Pulse Test: Pulse Width = 300µsec, Duty Cycle = 2%.

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

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

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

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Electrical Characteristics ^{3/}	Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage $V_{DS} = 0V, I_D = 1.0\mu A$	BV_{DSS}	90	125	—	V
Gate Threshold Voltage $V_{DS} = V_{GS}, I_D = 1.0mA$ $V_{DS} = V_{GS}, I_D = 1.0mA, T_A = -55^\circ C$ $V_{DS} = V_{GS}, I_D = 1.0mA, T_A = 125^\circ C$	$V_{GS(th)}$	0.8 — 0.3	1.6 1.8 1.3	2 2.5 —	V
Gate to Body Leakage $V_{DS} = 0V, V_{GS} = \pm 20V$ $V_{DS} = 0V, V_{GS} = \pm 20V, T_A = 125^\circ C$	I_{GSS}	— —	— —	± 100 ± 500	nA
Zero Gate Voltage Drain Current $V_{DS} = 72V, V_{GS} = 0V$ $V_{DS} = 72V, V_{GS} = 0V, T_A = 125^\circ C$	I_{DSS}	— —	— —	1 100	μA
On-State Drain Current* $V_{DS} = 10V, V_{GS} = 10V$	$I_{D(on)}$	—	1.8	—	mA
Drain to Source On State Resistance* $V_{GS} = 5V, I_D = 0.3A$ $V_{GS} = 10V, I_D = 1A$ $V_{GS} = 10V, I_D = 1A, T_A = 125^\circ C$	$R_{DS(on)}$	— — —	3.8 3.6 6.7	5.3 4 7.5	Ω
Forward Transconductance* $V_{DS} = 7.5V, I_D = 0.475A$	g_{fs}	170	340	—	mS
Diode Forward Voltage $I_S = 0.86A, V_{GS} = 0V$	V_{SD}	0.7	0.9	1.4	V
Input Capacitance Output Capacitance Reverse Transfer Capacitance Drain-Source Capacitance	C_{iss} C_{oss} C_{rss} C_{ds}	— — — —	35 15 2 30	50 40 10 —	pF
Turn-On Time Turn-Off Time	$t_{(on)}$ $t_{(off)}$	— —	6 8	10 10	nsec

CASE OUTLINE: TO-39 (/39)

Side view dimensions: $0.370''$ (total height), $0.335''$ (height to top of leads), $0.305''$ (height to bottom of leads), $0.260''$ (lead length), $0.240''$ (lead length to center), $0.500''$ MIN (total length), $0.125''$ (lead thickness), $0.009''$ (lead thickness).

Top view dimensions: $0.021''$ (lead diameter), $0.016''$ (lead diameter), $0.210''$ (lead diameter), $0.190''$ (lead diameter), $0.045''$ (lead diameter), $0.029''$ (lead diameter), $0.034''$ (lead diameter), $0.028''$ (lead diameter), 45° (lead angle).

PIN ASSIGNMENT (Standard)

Package	Drain	Source	Gate
TO-39(/39)	Pin 3	Pin 1	Pin 2