



# Solid State Devices, Inc.

14701 Firestone Blvd \* La Mirada, Ca 90638  
Phone: (562) 404-4474 \* Fax: (562) 404-1773  
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## SFF4392 SFF4393

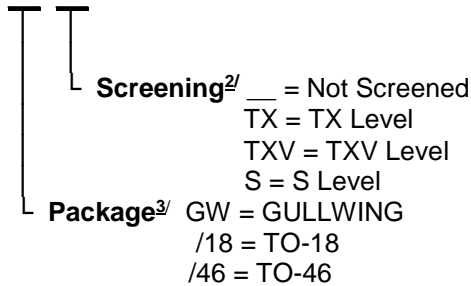
50 mA

$V_{(BR)GSS} = -40$  Volts  
N-Channel JFET Transistor

### DESIGNER'S DATA SHEET

#### Part Number / Ordering Information <sup>1/</sup>

SFF4392  
SFF4393



#### Features:

- Low ON Resistance
- Low Capacitance
- Fast Switching
- High Speed Analog Circuit Performance
- Negligible 'Off-Error', Excellent Accuracy
- Replacement for 2N4392 & 2N4393
- Available as Dual Device (GW)
- TX, TXV, and S-Level Screening Available - Consult Factory<sup>2/</sup>

Maximum Ratings	Symbol	Value	Unit
Drain – Source Voltage	$V_{DS}$	-40	V
Drain – Gate Voltage	$V_{DG}$	-40	V
Reverse Gate – Source Voltage	$V_{SG}$	-40	V
Drain Current	$I_D$	50	mA
Power Dissipation @ $T_A = 25^\circ\text{C}$	$P_D$	1.8	W
Operating & Storage Temperature	$T_{OP}$ & $T_{STG}$	-65 to +200	$^\circ\text{C}$

**NOTES:** \*Pulse Test: Pulse Width = 100  $\mu\text{sec}$ , Duty Cycle = 2%  
<sup>1/</sup> For ordering information, price, and availability - contact factory.

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

<sup>3/</sup> For package outlines - contact factory.

<sup>4/</sup> Unless otherwise specified, all electrical characteristics @ 25 $^\circ\text{C}$ .

<sup>5/</sup> Electrical characteristics apply to all models unless otherwise specified.

<sup>6/</sup> Guaranteed by design, not production tested.

TO-18



TO-46



Gullwing



\*Dime used as size reference

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

DATA SHEET #: FT0025C

DOCX



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# SFF4392 SFF4393

Electrical Characteristics <sup>4/5/</sup>		Symbol	Min	Typ	Max	Unit
<b>Gate – Source Breakdown Voltage</b>	$I_G = -1 \mu A, V_{DS} = 0 V$	$BV_{GSS}$	-40	-57	-	V
<b>Static, Drain – Source ON State Resistance</b> ( $I_D = 1 mA, V_{GS} = 0 V$ )	SFF4392 SFF4393	$R_{DS(ON)}$	-	53 60	60 100	$\Omega$
<b>Gate to Source Cutoff Voltage</b> ( $V_{DS} = 20 V, I_D = 1 nA$ )	SFF4392 SFF4393	$V_{GS(OFF)}$	-2 -0.5	-2.2 -2	-5 -3	V
<b>Gate to Source Leakage Current</b>	$V_{GS} = -20 V, V_{DS} = 0 V$ $V_{DG} = -20 V, V_{DS} = 0 V, T_A = 150^\circ C$	$I_{GSS}$	-	-60 -130	-100 -200	pA nA
<b>Zero Gate Voltage Drain Current</b> ( $V_{DS} = 20 V, V_{GS} = 0 V$ )	SFF4392 SFF4393	$I_{DSS}$	15 5	20 16	75 30	mA
<b>Drain Cutoff Current</b> ( $V_{DS} = 20 V$ )	SFF4392, $V_{GS} = -7 V$ SFF4393, $V_{GS} = -5 V$	$I_{D(OFF)}$	-	-	100 100	pA
	SFF4392, $V_{GS} = -7 V, T_A = 150^\circ C$ SFF4393, $V_{GS} = -5 V, T_A = 150^\circ C$	$I_{D(OFF)}$	-	-	200 200	nA
<b>Gate to Source Forward Voltage</b>	$I_G = 1 mA, V_{DS} = 0 V$	$V_{GS(F)}$	-	0.7	1.0	V
<b>Drain to Source “ON” Voltage</b> ( $V_{GS} = 0 V$ )	SFF4392, $I_D = 6 mA$ SFF4393, $I_D = 3 mA$	$V_{DS(ON)}$	-	0.35 0.2	0.4 0.4	V
<b>Small Signal, Drain – Source ON Resistance</b> ( $V_{GS} = 0 V, I_D = 0 A, f = 1 kHz$ )	SFF4392 SFF4393	$r_{ds(on)}$	-	-	60 100	$\Omega$
<b>Small Signal, Common-Source, Short-Circuit Input Capacitance</b>	$V_{DS} = 20 V, V_{GS} = 0 V, f = 1 MHz$	$C_{iss}$	-	-	14	pF
<b>Small Signal, Common-Source, Short-Circuit Reverse Transfer Capacitance</b> ( $V_{DS} = 0 V, f = 1 MHz$ )	SFF4392, $V_{GS} = -7 V$ SFF4393, $V_{GS} = -5 V$	$C_{rss}$	-	-	3.5 3.5	pF
<b>Turn ON Delay Time</b> ( $V_{DD} = 10 V, V_{GS(on)} = 0 V$ )	SFF4392, $I_{D(on)} = 6 mA, V_{GS(off)} = -7 V$ SFF4393, $I_{D(on)} = 3 mA, V_{GS(off)} = -5 V$	$t_{d(on)}$	-	8	15	ns
<b>Rise Time<sup>6/</sup></b>		$t_r$	-	-	5	ns
<b>Turn OFF Delay Time</b> ( $V_{DD} = 10 V, V_{GS(on)} = 0 V$ )	SFF4392, $I_{D(on)} = 6 mA, V_{GS(off)} = -7 V$ SFF4393, $I_{D(on)} = 3 mA, V_{GS(off)} = -5 V$	$t_{d(off)}$	-	6 6	35 50	ns
<b>Fall Time<sup>6/</sup></b> ( $V_{DD} = 10 V, V_{GS(on)} = 0 V$ )	SFF4392, $I_{D(on)} = 6 mA, V_{GS(off)} = -7 V$ SFF4393, $I_{D(on)} = 3 mA, V_{GS(off)} = -5 V$	$t_f$	-	-	20	ns

**NOTES:** \*Pulse Test: Pulse Width = 100  $\mu$ sec, Duty Cycle = 2%

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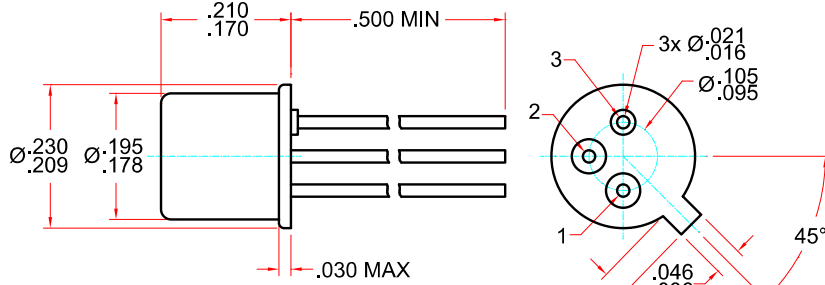


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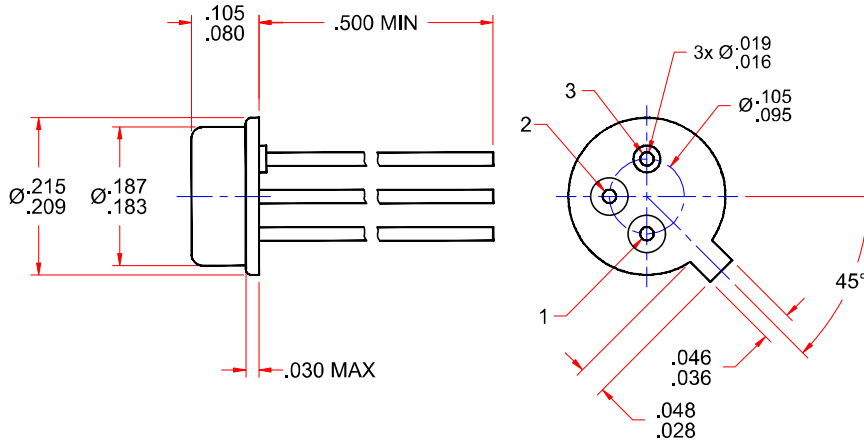
# SFF4392 SFF4393

## PACKAGE OUTLINE: TO-18



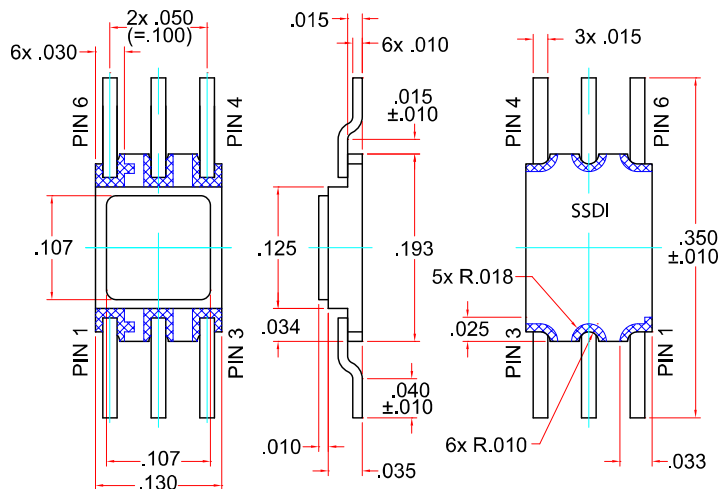
PIN 1	PIN 2	PIN 3	CASE
Source	Drain	Gate	Gate

## PACKAGE OUTLINE: TO-46



PIN 1	PIN 2	PIN 3	CASE
Source	Drain	Gate	Gate

## PACKAGE OUTLINE: GULLWING (GW)



Device #1		
PIN 1	PIN 2	PIN 3
Gate	Source	Drain

Device #2		
PIN 4	PIN 5	PIN 6
Gate	Source	Drain

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