



# Solid State Devices, Inc.

14701 Firestone Blvd \* La Mirada, Ca 90638  
Phone: (562) 404-4474 \* Fax: (562) 404-1773  
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## SFU290 thru SFU291 Series

### 4 Watt, 30 Volts N-Channel JFET

#### DESIGNER'S DATA SHEET

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

SFU

├── Screening <sup>2/</sup>  
 │   ├── = Not Screened  
 │   ├── TX = TX Level  
 │   ├── TXV = TXV Level  
 │   └── S = S Level

├── Package

│   ├── = TO-52  
 │   └── S.22 = SMD.22

└── Zero Gate Voltage Drain Current

    ├── 290 = 500 mA  
     └── 291 = 200 mA

#### Features:

- Very Low ON Resistance
- Very Fast Switching Speed
- Available in Hermetically Sealed, Surface Mount Power Package (SMD.22) for Applications Requiring High Power Dissipation Up to 4W
- High Off-Isolation
- Low Capacitance:  $C_{RSS} = 30 \text{ pF max}$
- Low Insertion Loss
- Replacement for Vishay Siliconix U290 & U291
- TX, TXV, and S-Level Screening Available<sup>2/</sup>

#### Applications:

- Low On resistance Analog/Digital Switches
- Choppers
- Sample-and-Hold
- Normally "On" Switches
- Current Limiters

#### Electrical Characteristics<sup>3/</sup>

		Symbol	Value	Units
Gate – Source Voltage		$V_{GS}$	-30	V
Drain – Gate Voltage		$V_{DG}$	30	V
Power Dissipation	SMD.22 TO-52	$P_D$ <sup>4/</sup>	4 0.350	W
Operating & Storage Temperature		Top Tstg	-55 to +150 -65 to +200	°C
Maximum Thermal Resistance	SMD.22 TO-52	$R_{\theta JC}$ $R_{\theta JA}$	30 357	°C/W

#### NOTES:

\* Pulse test: pulse width = 300µsec, duty cycle = 2%

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

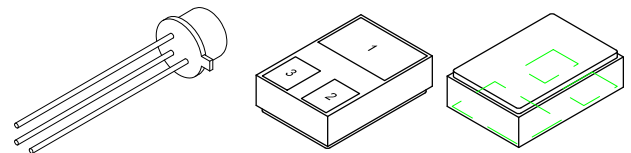
<sup>2/</sup> Screening based on MIL-PRF-19500. Screening flows available on request.

<sup>3/</sup> Unless otherwise specified, all electrical characteristics @25°C.

<sup>4/</sup> Above 25°C, Derate 33mW/°C for SMD.22 and 2.8mW/°C for TO-52

TO-52

SMD.22



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

DATA SHEET #: FT0064A

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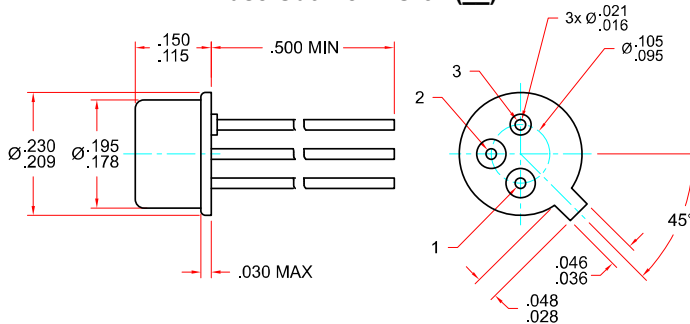
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# SFU290 thru SFU291 Series

Electrical Characteristics <sup>3/</sup>	Symbol	Min	Typ	Max	Units
<b>Gate to Source Breakdown Voltage</b> ( $V_{DS} = 0\text{ V}$ , $I_G = -10\ \mu\text{A}$ )	$V_{(BR)GSS}$	-30	-35	-	V
<b>Gate to Source Leakage</b> ( $V_{GS} = -15\text{ V}$ , $V_{DS} = 0\text{ V}$ )	$I_{GSS}$	-	-0.02 -0.01	-1 -1	nA $\mu\text{A}$
<b>Gate to Source Cut-Off Current</b> ( $V_{DS} = 5\text{ V}$ , $V_{GS} = -10\text{ V}$ )	$I_{D(off)}$	-	0.01 -0.005	1 1	nA $\mu\text{A}$
<b>Gate to Source Cut-Off Voltage</b> ( $V_{DS} = 15\text{ V}$ , $I_D = 3\text{ nA}$ )	$V_{GS(off)}$	-4.0 -1.5	-	-10.0 -4.5	V
<b>Zero Gate Voltage Drain Current</b> ( $V_{DS} = 10\text{ V}$ , $V_{GS} = 0\text{ V}$ )	$I_{DSS}$	500 200	-	-	mA
<b>Drain to Source On Resistance</b> ( $I_D = 1\text{ mA}$ , $V_{GS} = 0\text{ V}$ )	$R_{DS(on)}$	-	-	3.0 7.0	$\Omega$
<b>Common-Source Input Capacitance</b> $V_{GS} = 0\text{ V}$ , $V_{DS} = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_{iss}$	-	-	160	pF
<b>Common-Source Reverse Transfer Capacitance</b> $V_{GS} = -15\text{ V}$ , $V_{DS} = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_{rss}$	-	-	30	pF
<b>Turn-On Time</b> $V_{DD} = 1.5\text{ V}$ , $V_{GS(on)} = 0\text{ V}$ , $I_{D(on)} = 30\text{ mA}$ , $V_{GS(off)} = -12\text{ V}$ , $R_L = 50\ \Omega$	$t_{d(on)}$ $t_r$	-	-	15 20	ns
<b>Turn-Off Time</b> $V_{DD} = 1.5\text{ V}$ , $V_{GS(on)} = 0\text{ V}$ , $I_{D(on)} = 30\text{ mA}$ , $V_{GS(off)} = -12\text{ V}$ , $R_L = 50\ \Omega$	$t_{d(off)}$ $t_f$	-	-	15 20	ns

**Case Outline: TO-52 ( )**



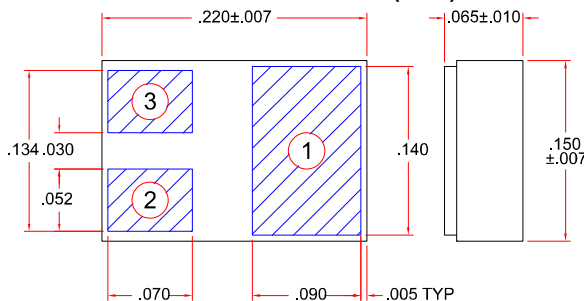
**NOTES:**

- \* Pulse test: pulse width = 300 $\mu\text{sec}$ , duty cycle = 2%
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- 2/ Screening based on MIL-PRF-19500. Screening flows available on request.
- 3/ Unless otherwise specified, all electrical characteristics @25°C.

**Available Part Numbers:**

**SFU290, SFU291,  
SFU290S.22, SFU291S.22**

**Case Outline: SMD.22 (S.22)**



**PIN ASSIGNMENT (Standard)**

Package	Drain	Source	Gate
TO-52	2	1	3
SMD.22	3	2	1

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