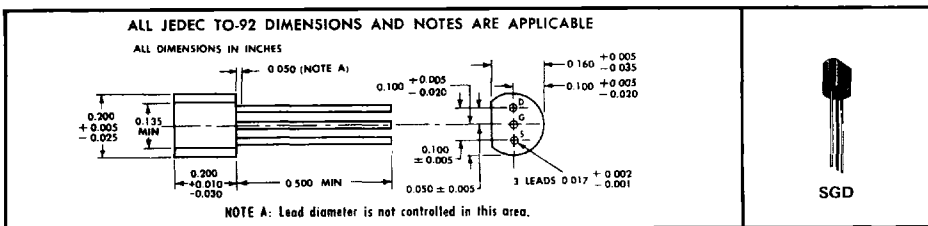## SILECT[†] FIELD-EFFECT TRANSISTORS[‡]

For Industrial and Consumer Small-Signal Applications

- Coded I_{DSS} Ranges for Precise Circuit Design

- Low $C_{rss} \ldots \leqslant 3$ pF

- High y_{fs}/C_{iss} Ratio (High-Frequency Figure-of-Merit)

- 2N5949 thru 2N5953 Are Recommended for New Designs

mechanical data

These transistors are encapsulated in a plastic compound specifically designed for this purpose, using a highly mechanized process developed by Texas Instruments. The case will withstand soldering temperatures without deformation. These devices exhibit stable characteristics under high-humidity conditions and are capable of meeting MIL-STD-202C, Method 106B. The transistor is insensitive to light.

ALL JEDEC TO-92 DIMENSIONS AND NOTES ARE APPLICABLE

ALL DIMENSIONS IN INCHES

NOTE A: Lead diameter is not controlled in this area.

SGD

absolute maximum ratings at 25°C free-air temperature (unless otherwise noted)

Drain-Gate Voltage . . . . 25 V
Drain-Source Voltage . . . . 25 V
Reverse Gate-Source Voltage . . . . −25 V
Forward Gate Current . . . . 10 mA
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 1) . . . . . 360 mW
Storage Temperature Range . . . . −65°C to 150°C
Lead Temperature 1/16 Inch from Case for 10 Seconds . . . . 260°C

NOTE 1: Derate linearly to 150°C free-air temperature at the rate of 2.88 mW/°C.

[†]Trademark of Texas Instruments
[‡]U. S. Patent No. 3,439,238

USES CHIP JN51

electrical characteristics at 25°C free-air temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS		TIS58 MIN TYP MAX			TIS59 MIN TYP MAX			UNIT
$V_{(BR)GSS}$	Gate-Source Breakdown Voltage	$I_G = -1\ \mu A,\ V_{DS} = 0$		−25			−25			V
I_{GSS}	Gate Cutoff Current	$V_{GS} = -15\ V,\ V_{DS} = 0$				−4			−4	nA
		$V_{GS} = -15\ V,\ V_{DS} = 0,\quad T_A = 100°C$				−2			−2	μA
I_{DSS}	Zero-Gate-Voltage Drain Current	$V_{DS} = 15\ V,\quad V_{GS} = 0,\quad$ See Note 2		2.5		8	6		25	mA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	$V_{DS} = 15\ V,\quad I_D = 20\ nA$		−0.5		−5	−1		−9	V
$\|y_{fs}\|$	Small-Signal Common-Source Forward Transfer Admittance	$V_{DS} = 15\ V,\quad V_{GS} = 0,$	$f = 1\ kHz,$ See Note 2		4000			4800		μmho
			$f = 1\ kHz$	1300	2200	4000	2300	3500	5000	μmho
$\|y_{os}\|$	Small-Signal Common-Source Output Admittance	$V_{DS} = 15\ V,$	$f = 1\ kHz$		20			50		μmho
C_{iss}	Common-Source Short-Circuit Input Capacitance	$I_D = 2\ mA\ (TIS58)$	$f = 1\ MHz$		6			6		pF
C_{rss}	Common-Source Short-Circuit Reverse Transfer Capacitance	$I_D = 5\ mA\ (TIS59)$	$f = 1\ MHz$		3			3		pF
$Re\ (y_{fs})$	Small-Signal Common-Source Forward Transfer Conductance		$f = 100\ MHz$	1000			2000			μmho

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PARAMETER COLOR-CODE INFORMATION

The TIS58 is furnished in color-coded I_{DSS} brackets, each having a 2-to-1 spread as shown in Table 1.

COLOR CODE	I_{DSS} BRACKET $V_{DS} = 15\ V,\ V_{GS} = 0$, See Note 2
Yellow	2.5 mA–5 mA
Green	4 mA–8 mA

TABLE 1 — TIS58

The TIS59 is furnished in color-coded I_{DSS} brackets, each having a 2.5-to-1 spread as shown in Table 2.

COLOR CODE	I_{DSS} BRACKET $V_{DS} = 15\ V,\ V_{GS} = 0$, See Note 2
Yellow	6 mA–15 mA
Green	10 mA–25 mA

TABLE 2 — TIS59

NOTE 2: These parameters must be measured using pulse techniques. $t_p \approx 100\ ms$, duty cycle $\leq 10\%$.

TEXAS INSTRUMENTS
INCORPORATED
POST OFFICE BOX 5012 • DALLAS, TEXAS 75222