TYPES 2N3458, 2N3459, 2N3460
N-CHANNEL SILICON JUNCTION FIELD-EFFECT TRANSISTORS

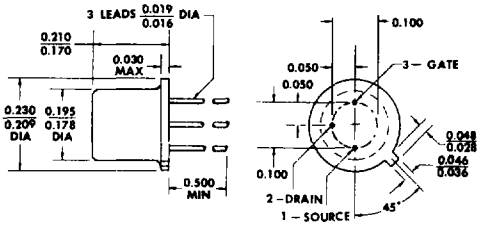
BULLETIN NO. DL-S 7011297, APRIL 1970

FOR INDUSTRIAL AND CONSUMER
SMALL-SIGNAL, LOW-NOISE
APPLICATIONS

4

*mechanical data

THE GATE IS IN ELECTRICAL CONTACT WITH THE CASE



ALL JEDEC TO-18 DIMENSIONS AND NOTES ARE APPLICABLE

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

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

Drain-Gate Voltage	50 V
Reverse Gate-Source Voltage	−50 V
Continuous Gate Current	10 mA
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 1)	300 mW
Storage Temperature Range	−65°C to 200°C
Lead Temperature 1/16 Inch from Case for 10 Seconds	300°C

NOTE 1: Derate linearly to 200°C free-air temperature at the rate of 1.71 mW/°C.

*JEDEC registered data. This data sheet contains all applicable registered data in effect at the time of publication.

USES CHIP JN51

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

PARAMETER		TEST CONDITIONS		2N3458		2N3459		2N3460		UNIT
				MIN	MAX	MIN	MAX	MIN	MAX	
I_{GSS}	Gate Reverse Current	V_{GS} = −30 V,	V_{DS} = 0		−0.25		−0.25		−0.25	nA
		V_{GS} = −30 V, T_A = 150°C	V_{DS} = 0,		−0.5		−0.5		−0.5	μA
I_{DGO}	Drain Reverse Current	V_{DG} = 50 V,	I_S = 0		1		1		1	μA
$V_{GS(off)}$	Gate-Source Cutoff Voltage	V_{DS} = 20 V,	I_D = 1 nA		−8		−4		−2	V
V_{GS}	Gate-Source Voltage	V_{DS} = 20 V,	I_D = 1 μA		−7.8		−3.4		−1.8	V
I_{DSS}	Zero-Gate-Voltage Drain Current	V_{DS} = 20 V, See Note 2	V_{GS} = 0,	3	15	0.8	4	0.2	1	mA
$\|y_{fs}\|$	Small-Signal Common-Source Forward Transfer Admittance	V_{DS} = 20 V, f = 1 kHz,	V_{GS} = 0, See Note 3	2.5	10	1.5	6	0.8	4.5	mmho
C_{iss}	Common-Source Short-Circuit Input Capacitance	V_{DS} = 10 V, f = 1 MHz	V_{GS} = 0,		18					pF
		V_{DS} = 6 V, f = 1 MHz	V_{GS} = 0,				18			
		V_{DS} = 4 V, f = 1 MHz	V_{GS} = 0,						18	
C_{oss}	Common-Source Short-Circuit Output Capacitance	V_{DS} = 30 V, f = 1 MHz,	V_{GS} = 0, See Notes 3 and 4		5		5		5	pF
g_{os}	Small-Signal Common-Source Output Conductance	V_{DS} = 30 V, f = 1 MHz,	V_{GS} = 0, See Note 3		35		20		5	μmho

*operating characteristics at 25°C free-air temperature

PARAMETER		TEST CONDITIONS		2N3458		2N3459		2N3460		UNIT
				MIN	MAX	MIN	MAX	MIN	MAX	
NF	Common-Source Spot Noise Figure	V_{DS} = 10 V, R_G = 1 MΩ, Noise Bandwidth = 6 Hz	V_{GS} = 0, f = 20 Hz,		6		4		4	dB

NOTES 2. This parameter must be measured using pulse techniques, t_w = 300 μs, duty cycle ≤ 2%.
3. These parameters must be measured with bias conditions applied for less than 5 seconds to avoid overheating.
4. C_{oss} is defined as the imaginary part of small-signal common-source output susceptance divided by 2πf.

*JEDEC registered data

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