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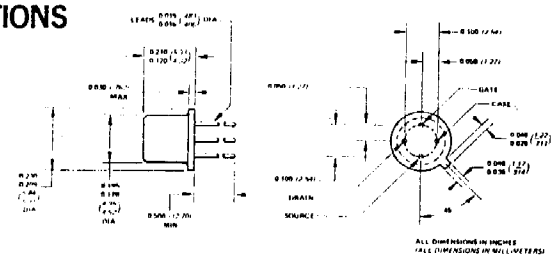
2N5397
2N5398

N-CHANNEL SILICON JUNCTION FIELD-EFFECT TRANSISTORS

FOR UHF AMPLIFIER, MIXER AND OSCILLATOR APPLICATIONS AND VIDEO AMPLIFIER APPLICATIONS

- G_{ps} = 10 dB Typical (Common Gate) at 450 MHz (2N5397)
- NF = 3 dB Typical at 450 MHz
- C_{rss} = 1 pF Typical



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Fourth lead is in electrical contact with case.

PRODUCT CONDITIONING

Units receive the following treatment before final electrical tests:

High Temp Storage: 24 Hours at 150°C
Thermal Shock: +100 to 0°C for 5 Cycles
25,000g Acceleration/Impact in the Y_1 Plane
Helium and/or Gross Leak Tests for Hermeticity

*ABSOLUTE MAXIMUM RATINGS (25°C)

Gate-Drain or Gate-Source Voltage . . . . . -25 V
Gate Current . . . . . 10 mA
Total Device Dissipation (Derate 1.7 mW/°C) . . . . . 300 mW
Storage Temperature Range . . . . . -65 to +200°C
Lead Temperature 1/16" from case for 10 sec . . . . . 300°C

*ELECTRICAL CHARACTERISTICS (25°C unless otherwise specified)

Characteristic		2N5397 Test Conditions	Min	Max	Unit	2N5398 Test Conditions	Min	Max	Unit
I_{GSS}	Gate Reverse Current	V_{GS} = -15 V, 25°C		-0.1	nA	V_{GS} = -15 25°C		-0.1	nA
		V_{DS} = 0 150°C		-0.1	μA	V_{DS} = 0 150°C		-0.1	μA
BV_{GSS}	Gate-Source Breakdown Voltage	I_G = -1 μA, V_{DS} = 0	-25		V	I_G = -1 μA, V_{DS} = 0	-25		V
V_P	Gate-Source Pinch-Off Voltage	V_{DS} = 10 V, I_D = 1 nA	-1	-6	V	V_{DS} = 10 V, I_D = 1 nA	-1	-6	V
I_{DSS}	Drain Current at Zero Gate Voltage †	V_{DS} = 10 V, V_{GS} = 0	10	30	mA	V_{DS} = 10 V, V_{GS} = 0	5	40	mA
$V_{GS(f)}$	Gate-Source Forward Voltage	I_G = 1 mA, V_{DS} = 0		1	V	I_G = 1 mA, V_{DS} = 0		1	V
g_{fs}	Common-Source Forward Transconductance †	V_{DS} = 10 V, I_D = 10 mA, f = 1 kHz	6000	10,000	μmho	V_{DS} = 10 V, V_{GS} = 0, f = 1 kHz	5500	10,000	μmho
g_{oss}	Common-Source Output Conductance			200	μmho			400	μmho
C_{rss}	Common-Source Reverse Transfer Capacitance	V_{DG} = 10 V, I_D = 10 mA f = 1 MHz		1.2	pF	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz		1.3	pF
C_{iss}	Common-Source Input Capacitance			5	pF			5.5	pF

*HIGH FREQUENCY CHARACTERISTICS at 450 MHz (25°C)

Characteristic		Test Conditions	Min	Max	Unit	Test Conditions	Min	Max	Unit
g_{iss}	Common-Source Input Conductance	V_{DG} = 10 V, I_D = 10 mA		2000	μmho	V_{DS} = 10 V, V_{GS} = 0		3000	μmho
g_{oss}	Common-Source Output Conductance			400	μmho			500	μmho
g_{fs}	Common-Source Forward Transconductance †		5500	9000	μmho		5000	10,000	μmho
G_{ps}	Common-Source Power Gain (neutralized)	V_{DG} = 10 V, I_D = 10 mA See Page 4	15		dB				
NF	Common-Source, Spot Noise Figure (neutralized)	V_{DG} = 10 V, I_D = 10 mA, See Page 4		3.5	dB				

*JEDEC Registered Data
† Pulse test duration: 2 ms.
These devices are manufactured to meet or exceed the requirements of MIL-S-19500.