

2N5163

N-CHANNEL FIELD-EFFECT TRANSISTOR

DIFFUSED SILICON PLANAR TRANSISTOR

ABSOLUTE MAXIMUM RATINGS (Note 1)

Maximum Temperatures

Operating Junction Temperature	125°C
Storage Temperature	-55°C to +125°C
Soldering Temperature (10 second time limit)	260°C

Maximum Power Dissipation

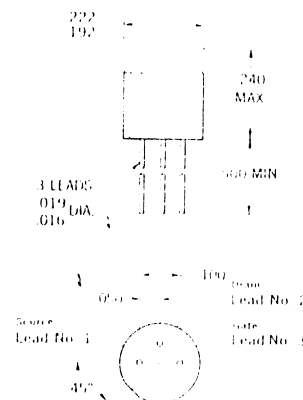
Total Dissipation at 25°C Ambient Temperature (Note 2)	0.2 Watt
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Maximum Voltages

V_{GS}	Source to Gate Voltage	25 Volts
V_{DS}	Drain to Source Voltage	25 Volts
V_{DG}	Drain to Gate Voltage	25 Volts
I_G	Gate Current	50 mA

PHYSICAL DIMENSIONS

In accordance with JEDEC (TO 18) outline



NOTES:

All dimensions in inches.
All leads electrically isolated from case.
Package weight is 0.31 gram. Package is electrically non-conductive material.

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Y_{fs}	Forward Transadmittance (f = 1.0 kHz)	2,000	6,000	9,000	μ mhos	$V_{DS} = 15$ V, $V_{GS} = 0$
$Re(f_{os})$	Forward Transconductance (f = 1.0 MHz)	1,800	5,500		μ mhos	$V_{DS} = 15$ V, $V_{GS} = 0$
e_n	Equivalent Input Noise Voltage (f = 1.0 kHz, BW = 150 Hz)		12	50	nV/ $\sqrt{\text{Hz}}$	$V_{DS} = 15$ V, $I_D = 1.0$ mA
NF	Noise Figure (f = 1.0 kHz, $R_G = 150$ k Ω , BW = 150 Hz)			3.0	dB	$V_{DS} = 15$ V, $I_D = 1.0$ mA
NF	Noise Figure (f = 1.0 kHz, $R_G = 1.0$ M Ω , BW = 150 Hz)		<0.1		dB	$V_{DS} = 15$ V, $I_D = 1.0$ mA
$r_{ds(on)}$	Drain "On" Resistance (f = 1.0 kHz)		125	500	ohms	$V_{GS} = 0$, $I_D = 0$
I_{DSS}	Drain Current	1.0	14	40	mA	$V_{DS} = 15$ V, $V_{GS} = 0$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-0.4	-3.7	-8.0	Volts	$V_{DS} = 15$ V, $I_D = 1.0$ μ A
V_{GS}	Gate to Source Voltage		-3.5	-7.5	Volts	$V_{DS} = 15$ V, $I_D = 100$ μ A
I_{GSS}	Gate Reverse Current		0.1	10	nA	$V_{GS} = -15$ V, $V_{DS} = 0$
$I_{GSS}(85^\circ\text{C})$	Gate Reverse Current		0.03	0.6	μ A	$V_{GS} = -15$ V, $V_{DS} = 0$
C_{rss}	Reverse Transfer Capacitance (f = 1.0 MHz)		1.3	3.0	pF	$V_{DS} = 15$ V, $V_{GS} = 0$
C_{iss}	Input Capacitance (f = 1.0 MHz)		8.7	12	pF	$V_{DS} = 15$ V, $V_{GS} = 0$
Y_{os}	Output Admittance (f = 1.0 kHz)		60	200	μ mhos	$V_{DS} = 15$ V, $V_{GS} = 0$
BV_{GSS}	Gate to Source Breakdown Voltage	-25			Volts	$V_{DS} = 0$, $I_D = 10$ μ A

NOTES:

(1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.

(2) These ratings give a maximum junction temperature of 125°C and junction to ambient thermal resistance of 500°C/Watt (derating factor of 2.0 mW/°C).