New Jersey Semi-Conductor Products, Inc.

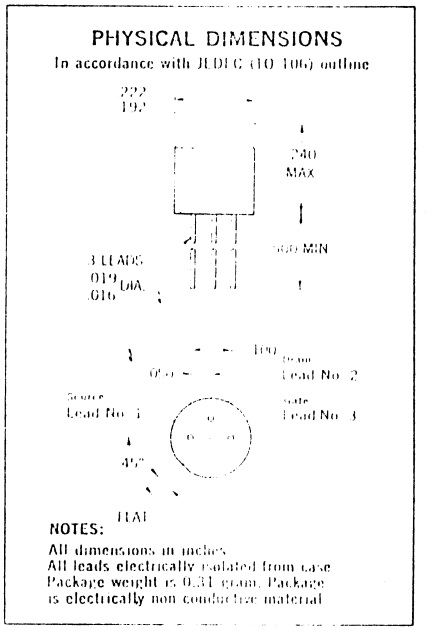
20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

2N5163

N-CHANNEL FIELD EFFECT TRANSISTOR

DIFFUSED SILICON PLANAR FET 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

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

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	μmhos	V_{DS} = 15 V	V_{GS} = 0
$Re(Y_{fs})$	Forward Transconductance (f = 1.0 MHz)	1,800	5,500		μmhos	V_{DS} = 15 V	V_{GS} = 0
e_n	**Equivalent Input Noise Voltage (f = 1.0 kHz, BW = 150 Hz)**		12	50	nV/$\sqrt{Hz}$	V_{DS} = 15 V	I_D = 1.0 mA
NF	Noise Figure (f = 1.0 kHz, R_G = 150 kΩ, 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 MΩ, 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 μA
V_{GS}	Gate to Source Voltage		−3.5	−7.5	Volts	V_{DS} = 15 V	I_D = 100 μA
I_{GSS}	**Gate Reverse Current**		0.1	10	nA	V_{GS} = −15 V	V_{DS} = 0
I_{GSS}(85°C)	Gate Reverse Current		0.03	0.6	μA	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	μmhos	V_{DS} = 15 V	V_{GS} = 0
BV_{GSS}	Gate to Source Breakdown Voltage	−25			Volts	V_{DS} = 0	I_G = 10 μA

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).