

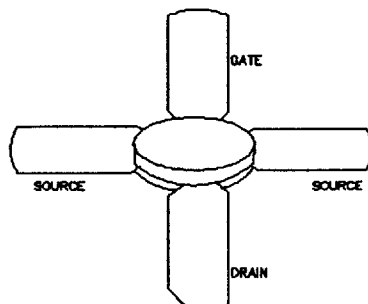
T-39-05

POLYFET RF DEVICES

F1501

General Description

Silicon vertical DMOS designed specifically for RF applications. Immune to forward and reverse bias secondary breakdown. "POLYFET"™ process features gold metal for greatly extended lifetime. Low output capacitance and high F_t enhance broad band performance.



PATENTED GOLD METALLIZED
SILICON RF POWER MOSFET

1 WATTS TO 500 MHZ

Single Ended
Package Style AW

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$)

Total Device Dissipation	Junction to Case Thermal Resistance	Maximum Junction Temperature	Storage Temperature	DC Drain Current	Drain to Gate Voltage	Drain to Source Voltage	Gate to Source Voltage
10 Watts	14.00 $^\circ\text{C/W}$	200 $^\circ\text{C}$	-65 $^\circ\text{C}$ to 150 $^\circ\text{C}$	0.8 A	70 V	70 V	40 V

RF CHARACTERISTICS (1 WATT OUTPUT)

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
G_{ps}	Common Source Power Gain	10			dB	$I_{DQ} = 0.2\text{A}$, $V_{DS} = 28\text{V}$, $F = 500\text{ MHz}$
η	Drain Efficiency		60		%	$I_{DQ} = 0.2\text{A}$, $V_{DS} = 28\text{V}$, $F = 500\text{ MHz}$
VSWR	Load Mismatch Tolerance			20 : 1	Relative	$I_{DQ} = 0.2\text{A}$, $V_{DS} = 28\text{V}$, $F = 500\text{ MHz}$

ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
BV_{DS}	Drain Breakdown Voltage	65			V	$I_D = 0.01\text{A}$, $V_{GS} = 0\text{V}$
I_{DSS}	Zero Bias Drain Current			0.2	mA	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$
I_{GSS}	Gate Leakage Current			1	μA	$V_{DS} = 0\text{V}$, $V_{GS} = 40\text{V}$
V_{GS}	Gate Bias for Drain Current	1		7	V	$I_D = 0.02\text{A}$, $V_{GS} = V_{DS}$
g_M	Forward Transconductance		0.2		MHO	$V_{DS} = 28\text{V}$, $I_D = 0.2\text{A}$, $F = 120\text{ Hz}$
C_{iss}	Common Source Input Capacitance		9		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{rss}	Common Source Feedback Capacitance		1		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{oss}	Common Source Output Capacitance		6		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$

POLYFET RF DEVICES