

POLYFET RF DEVICES

F3005

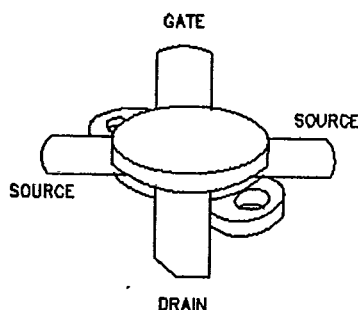
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General Description

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 METALIZED SILICON
RF POWER MOSFET

100 WATTS TO 100 MHz

Single Ended
Package Style AMABSOLUTE 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
160 Watts	1.10 $^\circ\text{C/W}$	200 $^\circ\text{C}$	-65 $^\circ\text{C}$ to 150 $^\circ\text{C}$	10 A	70 V	70 V	40 V

RF CHARACTERISTICS (100 WATTS OUTPUT)

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
G_{ps}	Common Source Power Gain	13			dB	$I_{DQ} = 1.0\text{A}$, $V_{DS} = 28\text{V}$, $F = 100\text{ MHz}$
η	Drain Efficiency		60		%	$I_{DQ} = 1.0\text{A}$, $V_{DS} = 28\text{V}$, $F = 100\text{ MHz}$
VSWR	Load Mismatch Tolerance			20 : 1	Relative	$I_{DQ} = 1.0\text{A}$, $V_{DS} = 28\text{V}$, $F = 100\text{ MHz}$

ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
BV_{DSS}	Drain Breakdown Voltage	65			V	$I_D = 0.1\text{A}$, $V_{GS} = 0\text{V}$
I_{DSS}	Zero Bias Drain Current			6	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	$I_D = 0.3\text{A}$, $V_{GS} = V_{DS}$
g_M	Forward Transconductance		3.5		MHO	$V_{DS} = 28\text{V}$, $I_D = 3.0\text{A}$, $F = 120\text{ Hz}$
C_{iss}	Common Source Input Capacitance		200		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{fss}	Common Source Feedback Capacitance		20		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{oss}	Common Source Output Capacitance		120		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$

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