

POLYFET RF DEVICES

F1053

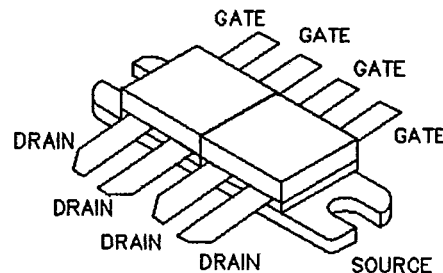
General Description

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

50 WATTS TO 1000 MHZ

Quad
Package Style BB

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

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
170 Watts	1.05 $^\circ\text{C/W}$	200 $^\circ\text{C}$	-65 $^\circ\text{C}$ to 150 $^\circ\text{C}$	8 A	70 V	70 V	40 V

RF CHARACTERISTICS (50 WATTS OUTPUT)

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
G_{ps}	Common Source Power Gain	7.5			dB	$I_{DQ} = 0.8\text{A}$, $V_{DS} = 28\text{V}$, $F = 1000\text{ MHz}$
η	Drain Efficiency		45		%	$I_{DQ} = 0.8\text{A}$, $V_{DS} = 28\text{V}$, $F = 1000\text{ MHz}$
VSWR	Load Mismatch Tolerance		5 : 1		Relative	$I_{DQ} = 0.8\text{A}$, $V_{DS} = 28\text{V}$, $F = 1000\text{ MHz}$

ELECTRICAL CHARACTERISTICS (EACH SECTION)

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
BV_{DSS}	Drain Breakdown Voltage	65			V	$I_D = 0.05\text{A}$, $V_{GS} = 0\text{V}$
I_{DSS}	Zero Bias Drain Current			1	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	$I_D = 0.2\text{A}$, $V_{GS} = V_{DS}$
g_M	Forward Transconductance		0.8		MHO	$V_{DS} = 28\text{V}$, $I_D = 1.0\text{A}$, $F = 120\text{ Hz}$
C_{iss}	Common Source Input Capacitance		30		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{rss}	Common Source Feedback Capacitance		4		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{oss}	Common Source Output Capacitance		20		pFD	$V_{DS} = 28\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$

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