

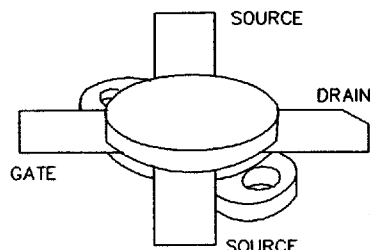
T-39-07

POLYFET RF DEVICES

F1215

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

15 WATTS TO 175 MHZ

Single Ended
Package Style AA

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
80 Watts	3.12 $^\circ\text{C/W}$	200 $^\circ\text{C}$	-65 $^\circ\text{C}$ to 150 $^\circ\text{C}$	4 A	45 V	45 V	40 V

RF CHARACTERISTICS (15 WATTS OUTPUT)

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
G_{ps}	Common Source Power Gain	10			dB	$I_{DQ} = 0.8\text{A}$, $V_{DS} = 12.5\text{V}$, $F = 175\text{ MHz}$
η	Drain Efficiency		60		%	$I_{DQ} = 0.8\text{A}$, $V_{DS} = 12.5\text{V}$, $F = 175\text{ MHz}$
VSWR	Load Mismatch Tolerance			20 : 1	Relative	$I_{DQ} = 0.8\text{A}$, $V_{DS} = 12.5\text{V}$, $F = 175\text{ MHz}$

ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	MINIMUM	TYPICAL	MAXIMUM	UNITS	CONDITIONS
BV_{DS}	Drain Breakdown Voltage	40			V	$I_D = 0.1\text{A}$, $V_{GS} = 0\text{V}$
I_{DSS}	Zero Bias Drain Current			2	mA	$V_{DS} = 12.5\text{V}$, $V_{GS} = 0\text{V}$
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		1.6		MHO	$V_{DS} = 12.5\text{V}$, $I_D = 2.0\text{A}$, $F = 120\text{ Hz}$
C_{iss}	Common Source Input Capacitance		80		pFD	$V_{DS} = 12.5\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{rss}	Common Source Feedback Capacitance		12		pFD	$V_{DS} = 12.5\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$
C_{oss}	Common Source Output Capacitance		60		pFD	$V_{DS} = 12.5\text{V}$, $V_{GS} = 0\text{V}$, $F = 1\text{ MHz}$

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