

## RF POWER MOSFET

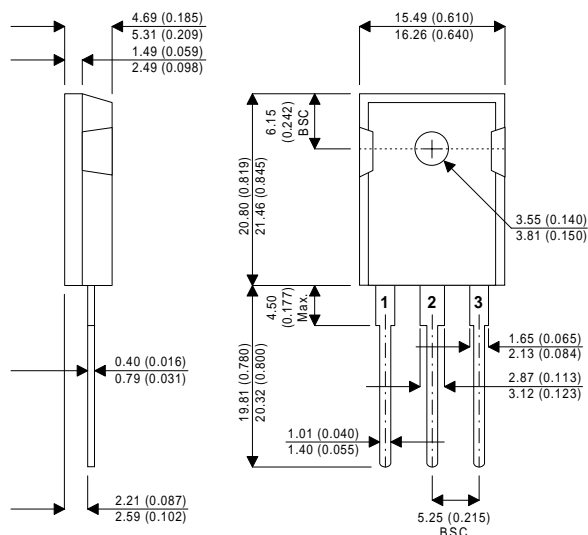
### N-CHANNEL ENHANCEMENT MODE 125W – 50V – 13.56MHz

#### FEATURES

- Low Cost Common Source RF Package.
- Very High Breakdown for Improved Ruggedness.
- Low Thermal Resistance.
- Nitride Passivated Die for Improved Reliability.

TO-247AD Package Outline.

Dimensions in mm (inches)



PIN NO	DEVICE	
	SRF440	SRF441
1	GATE	DRAIN
2	SOURCE	SOURCE
3	DRAIN	GATE

#### Dimensions in Millimeters and (Inches)

#### NOTE:

The SRF440 and SRF441 comprise a symmetric pair of RF Power Transistors and meet the same electrical specifications. The device pin-outs are the mirror image of each other to allow ease of use as a push-pull pair.

#### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}C$ unless otherwise stated)

$V_{DSS}$	Drain – Source Voltage	150	V
$V_{DGO}$	Drain – Gate Voltage	150	
$I_D$	Continuous Drain Current	11	A
$V_{GS}$	Gate – Source Voltage	$\pm 30$	V
$P_D$	Total Power Dissipation @ $T_{case} = 25^{\circ}C$	167	W
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to 150	$^{\circ}C$
$T_L$	Lead Temperature : 0.063" from Case for 10 Sec.	300	

**STATIC ELECTRICAL RATINGS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0V$ , $I_D = 250\mu A$	150			V
$I_{DSS}$	Zero Gate Voltage Drain Current ( $V_{GS} = 0V$ )	$V_{DS} = V_{DSS}$			250	$\mu A$
		$V_{DS} = 0.8V_{DSS}$ , $T_C = 125^{\circ}C$			1000	
$I_{GSS}$	Gate – Source Leakage Current	$V_{GS} = \pm 30V$ , $V_{DS} = 0V$			$\pm 100$	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ , $I_D = 200mA$	2		5	V
$g_{fs}$	Forward Transconductance	$V_{DS} = 10V$ , $I_D = 5.5A$	4	5		S
$V_{DS(ON)}$	On State Drain Voltage <sup>1</sup>	$I_{D(ON)} = 10A$ , $V_{GS} = 10V$			6	V

**DYNAMIC CHARACTERISTICS**

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
$C_{iss}$	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 50V$ $f = 1MHz$		755	900	pF
$C_{oss}$	Output Capacitance			155	215	
$C_{rss}$	Reverse Transfer Capacitance			55	90	

**FUNCTIONAL CHARACTERISTICS**

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
$G_{ps}$	Common source Amplifier Power Gain	$f = 13.56MHz$ $I_{DQ} = 200mA$ , $V_{DD} = 50V$ $P_{out} = 125W$	18	21		dB
$\eta$	Drain Efficiency			63		%
$\psi$	Electrical Ruggedness VSWR 20:1		No Degradation in Output Power			

**THERMAL CHARACTERISTICS**

	Characteristic	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Junction to Case			0.75	$^{\circ}C/W$

1) Pulse Test: Pulse Width < 380 $\mu$ S , Duty Cycle < 2%



CAUTION — Electrostatic Sensitive Devices. Anti-Static Procedures Must Be Followed.