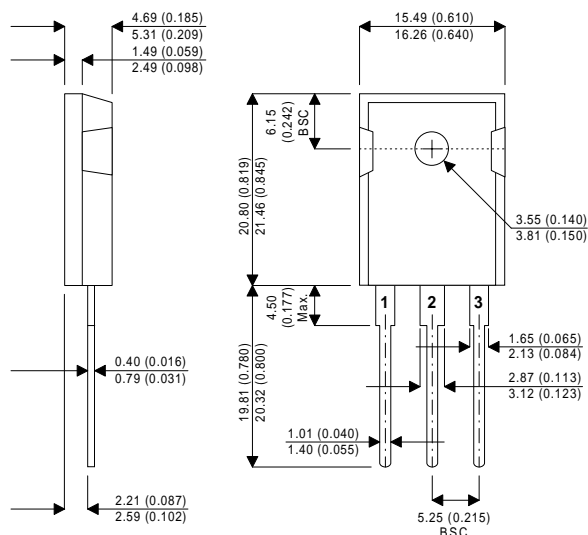


### TO-247AD Package Outline.

Dimensions in mm (inches)



## RF POWER MOSFET

### N-CHANNEL ENHANCEMENT MODE 200W – 100V – 13.56MHz

#### FEATURES

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

PIN NO	DEVICE	
	SRF442	SRF443
1	GATE	DRAIN
2	SOURCE	SOURCE
3	DRAIN	GATE

#### Dimensions in Millimeters and (Inches)

##### NOTE:

The SRF442 and SRF443 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 ( $T_{case} = 25^{\circ}\text{C}$ unless otherwise stated)

$V_{DSS}$	Drain – Source Voltage	300	V
$V_{DGO}$	Drain – Gate Voltage	300	
$I_D$	Continuous Drain Current	8	A
$V_{GS}$	Gate – Source Voltage	$\pm 30$	V
$P_D$	Total Power Dissipation @ $T_{case} = 25^{\circ}\text{C}$	167	W
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	-55 to 150	$^{\circ}\text{C}$
$T_L$	Lead Temperature : 0.063" from Case for 10 Sec.	300	

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

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0V$ , $I_D = 250\mu\text{A}$	300			V
$I_{DSS}$	Zero Gate Voltage Drain Current ( $V_{GS} = 0V$ )	$V_{DS} = V_{DSS}$			250	$\mu\text{A}$
		$V_{DS} = 0.8V_{DSS}$ , $T_C = 125^{\circ}\text{C}$			1000	
$I_{GSS}$	Gate – Source Leakage Current	$V_{GS} = \pm 30V$ , $V_{DS} = 0V$			$\pm 100$	nA
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ , $I_D = 200\text{mA}$	2		5	V
$g_{fs}$	Forward Transconductance	$V_{DS} = 10V$ , $I_D = 5.5\text{A}$	3.5	4.5		S
$V_{DS(ON)}$	On State Drain Voltage <sup>1</sup>	$I_D^{(ON)} = 6.5\text{A}$ , $V_{GS} = 10V$			6	V

**DYNAMIC CHARACTERISTICS**

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
$C_{iss}$	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 100V$ $f = 1\text{MHz}$		730	900	pF
$C_{oss}$	Output Capacitance			100	140	
$C_{rss}$	Reverse Transfer Capacitance			33	50	

**FUNCTIONAL CHARACTERISTICS**

	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
$G_{ps}$	Common source Amplifier Power Gain	$f = 13.56\text{MHz}$ $I_{DQ} = 50\text{mA}$ , $V_{DD} = 100V$ $P_{out} = 200W$	20	22		dB
$\eta$	Drain Efficiency			65		%
$\psi$	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	$^{\circ}\text{C/W}$

1) Pulse Test: Pulse Width  $< 380\mu\text{s}$ , Duty Cycle  $< 2\%$



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