

RF POWER MOSFETs

Higher Voltage.....Smaller System Size.....Lower System Cost

APT RF Power MOSFETs are optimized for high voltage power applications up to 120 MHz. The die geometry has been optimized for high RF power efficiency and gain.

The RF Power MOSFETs in the plastic TO-247 package use an internal isolation substrate to create a common source configuration. The source is directly connected to the center pin and heatsink tab; no insulator is needed by the user. This provides maximum thermal efficiency without the expense and assembly problems of drain isolation. Symmetric wire bonding schemes inside insure that both pin-out versions of each device are perfect mirror image pairs. This configuration allows for easy layout of push-pull and parallel pairs for circuit board symmetry and separation of input and output sections.

For the higher power levels, the ceramic packages of the push-pull ARF450 and the high power 1500 series permits operation up to 200 °C maximum junction temperature while providing superior thermal and RF performance.

The new ARF460 and 1500 series have been designed for superior mismatch ruggedness. The die used for these part types have 75% more Forward-Biased Safe Operating Area (FBSOA) than previous devices. The increased FBSOA and high voltage breakdown headroom make these parts

particularly rugged in difficult RF load environments. The 460 series is ideal for class AB operation as well as high efficiency nonlinear operation.

High Voltage Operation ... Historically, all RF Power MOSFETs were operated at supply voltages of 50V or less. This limitation has been removed by combining our high voltage MOSFET technology with specific RF die geometries. RF amplifier operation is now possible from 50 to 250 volts.

Why Higher Voltage ... Higher operating voltage means higher load impedances. For 150W output from a 50V supply the load impedance is only 8 ohms. At 125V, the load impedance is 50 ohms. The higher impedance allows simpler transformers and fewer combiners. Paralleled devices can still operate into reasonable and convenient impedances. Increasing the operating voltage also lowers the DC current required for any given power output, reducing the size weight and cost of other system components.

Look for these
new packages
coming soon!



P _{OUT} Watts	Freq. MHz	V _{DD} /BV _{DSS} Volts	R _{θJC} °C/W	Package Style	Part Number	Class
85	100	125V/500V	0.76	Figure 1/2	ARF449A/B	C-E
85	25	50V/150V	0.75	Figure 1	ARF440*	A-E
		50V/150V	0.75	Figure 2	ARF441*	A-E
		100V/300V	0.75	Figure 1	ARF442*	A-E
		100V/300V	0.75	Figure 2	ARF443*	A-E
100	100	125V/500V	0.70	Figure 1/2	ARF463A/B	A-E
	100	65V/200V	0.70	Figure 1/2	ARF464A/B	A-E
105	25	250V/1kV	0.60	Figure 1	ARF444*	C-E
	25	250V/1kV	0.60	Figure 2	ARF445*	C-E
115	65	250V/1kV	0.55	Figure 1	ARF446	C-E
		250V/1kV	0.55	Figure 2	ARF447	C-E
		125V/500V	0.55	Figure 1/2	ARF448A/B	C-E
125	60	125V/500V	0.50	Figure 1/2	ARF460A/B	A-E
		250V/1kV	0.50	Figure 1/2	ARF461A/B	A-E
		65V/200V	0.50	Figure 1/2	ARF462A/B	A-E
325	120	125V/500V	0.26	Figure 3	ARF450	C-E
750	40	125V/500V	0.12	Figure 4	ARF1500	C-E
	40	250V/1kV	0.12	Figure 4	ARF1501	C-E
	40	65V/200V	0.12	Figure 4	ARF1502	C-E

Figure 1

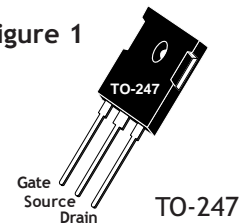


Figure 2

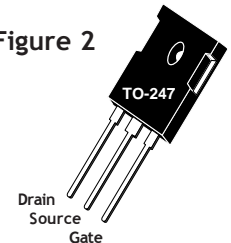


Figure 3
T-Pack

Figure 4
T1-Pack



*Not Recommended for new designs.