

## ITF TECHNICAL NOTE MAXIMUM POWER RATING LOW POWER PACKAGE

The low power package in which many of our combiners are embedded is capable of dissipating 2.5 watts if used under the proper operating condition. This technical note details the achievable maximum power ratings for a given ambient temperature.

The maximum power that the package can dissipate is a function of the ambient temperature when in operation and the known thermal resistance of the package, which is  $25^{\circ}\text{C}/\text{W}_{\text{dissipated}}$ . The first chart shows the maximum power that can be dissipated for a given ambient temperature. The second is an example of the maximum input power given the transmission loss of the device.

$$T_{\text{max}} = T_{\text{base}} + (P_{\text{diss max}} \cdot \theta)$$

$$P_{\text{diss max}} = (T_{\text{max}} - T_{\text{ambient}}) / \theta$$

$$P_{\text{max}} = P_{\text{diss max}} / \text{TL}$$

$T_{\text{max}}$ : maximum internal temperature set at  $75^{\circ}\text{C}$

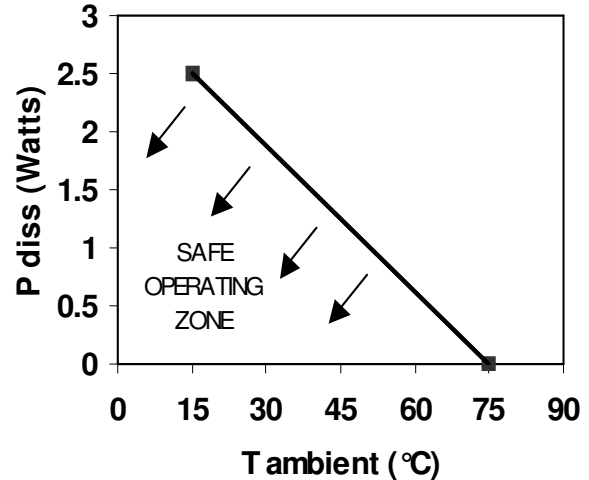
$T_{\text{ambient}}$ : ambient temperature when in operation ( $^{\circ}\text{C}$ )

$P_{\text{diss max}}$ : maximum dissipated power (W)

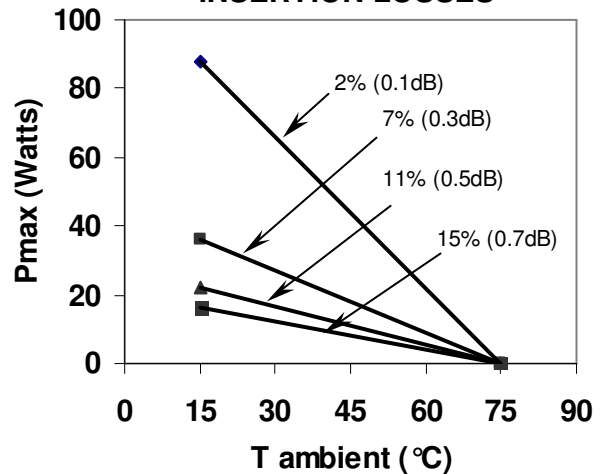
TL: Transmission loss (%)

$\theta$ : thermal resistance set at  $25^{\circ}\text{C}/\text{W}_{\text{dissipated}}$

### LOW POWER PACKAGE DISSIPATION CAPACITY



### MAXIMUM ALLOWABLE INPUT POWER FOR ALL PORTS TOGETHER FOR DIFFERENT INSERTION LOSSES



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