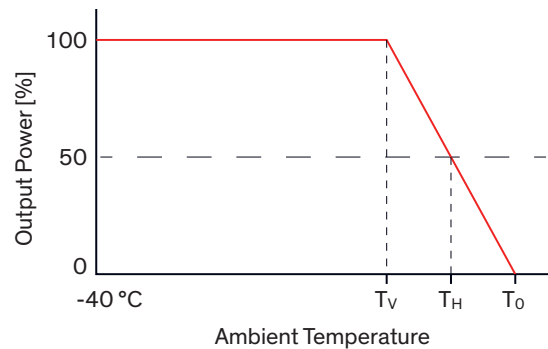
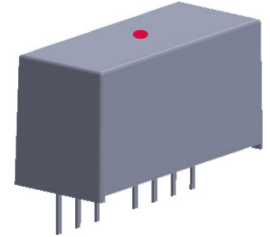


Thermal Consideration

Environment temperature

It is a physical condition that power conversion over a galvanic isolation comes along with some power loss. This power loss is transformed to heat which might reduces the lifetime of electronic components. It is our design guideline to use best resistant components and to optimize the dissipation of internal heat. But please take in consideration that the environment has an impact on the heat exchange process and the heat emission of the DC/DC converter can have an impact on other components nearby. Avoid heat accumulation! Operating temperature range is typically specified for an ambient with free air convection. If free air convection is not given it is recommended to simulate the worst case condition (concerning environment temperature and power) and measure the temperature at the point as per below.

The temperature at this point should not exceed 100°C in the application.



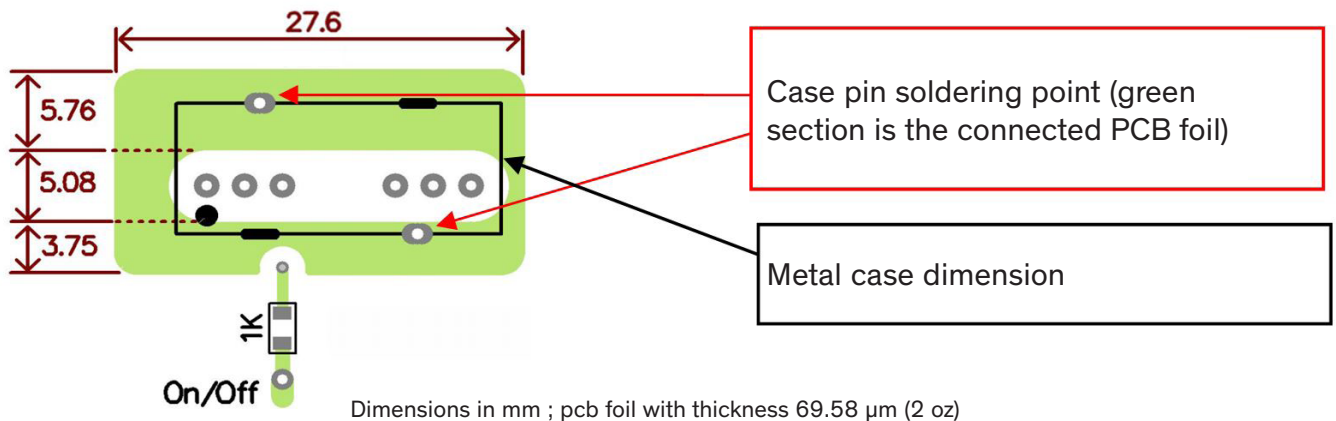
Operating temperature ranges and power derating

Models	Models with Metal Casing									Models with Plastic Casing (Suffix -P)								
	20 LFM (natural convection)			100 LFM			300 LFM			20 LFM (natural convection)			100 LFM			300 LFM		
Single output	T_V	T_H	T_0	T_V	T_H	T_0	T_V	T_H	T_0	T_V	T_H	T_0	T_V	T_H	T_0	T_V	T_H	T_0
TMR 9-2410WI	58	79	100	73	86	100	83	91	100	51	76	100	64	82	100	74	87	100
TMR 9-2411WI	58	78	100	72	86	100	83	91	100	50	75	100	63	82	100	74	87	100
TMR 9-2419WI	65	82	100	77	88	100	86	92	100	58	79	100	69	85	100	78	89	100
TMR 9-2412WI	67	83	100	78	89	100	87	93	100	59	80	100	69	85	100	78	89	100
TMR 9-2413WI	67	83	100	78	89	100	87	93	100	59	80	100	71	86	100	79	89	100
TMR 9-2415WI	68	84	100	79	89	100	87	93	100	61	80	100	72	86	100	79	89	100
TMR 9-4810WI	58	78	100	72	86	100	83	91	100	51	76	100	63	82	100	74	87	100
TMR 9-4811WI	58	79	100	72	86	100	83	91	100	50	75	100	63	82	100	73	87	100
TMR 9-4819WI	66	83	100	78	89	100	86	93	100	60	80	100	71	86	100	79	90	100
TMR 9-4812WI	68	84	100	79	89	100	87	94	100	61	80	100	72	86	100	79	90	100
TMR 9-4813WI	69	85	100	80	90	100	88	94	100	62	81	100	73	87	100	81	91	100
TMR 9-4815WI	70	85	100	81	91	100	88	94	100	63	82	100	73	87	100	81	91	100
Dual output																		
TMR 9-2421WI	62	81	100	75	87	100	84	91	100	54	77	100	67	83	100	77	88	100
TMR 9-2422WI	66	82	100	78	89	100	87	93	100	59	80	100	70	85	100	78	89	100
TMR 9-2423WI	66	83	100	78	89	100	87	93	100	58	79	100	70	85	100	78	89	100
TMR 9-4821WI	63	81	100	75	88	100	85	92	100	55	78	100	67	83	100	77	88	100
TMR 9-4822WI	66	83	100	78	89	100	86	93	100	59	79	100	70	85	100	78	89	100
TMR 9-4823WI	61	81	100	75	88	100	85	92	100	54	77	100	67	83	100	77	88	100

Thermal Consideration

PCB layout suggestion

For reducing the case temperature and thus increasing the modul life time, the following PCB layout is suggested.



BOTTOM VIEW

The following table shows the effect of the suggested PCB layout.

Model: TMR 9-4815WI (Vin=48V; Full Load)				
Conduction	Ambient temperature	Metal case temperature	Temperature difference	Images of thermal camera
Case pin is not connected to PCB foil circuit.	28.3°C	59.1°C	30.8°C	
Case pin is connected to PCB foil circuit.	28.2°C	54.8°C	26.6°C	