

PTH04T241W - Type A Ceramic Capacitors

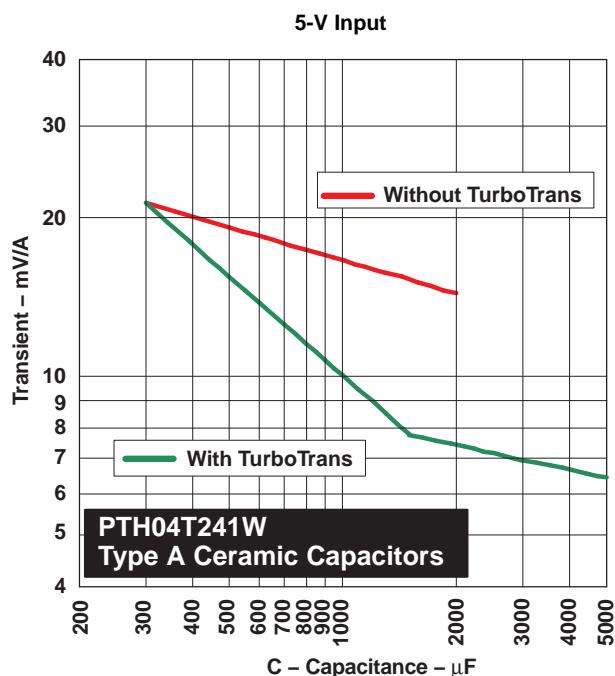


Figure 10. Capacitor Type A,
 $100 \leq C(\mu\text{F}) \times \text{ESR}(\text{m}\Omega) \leq 1000$
(e.g. Ceramic)

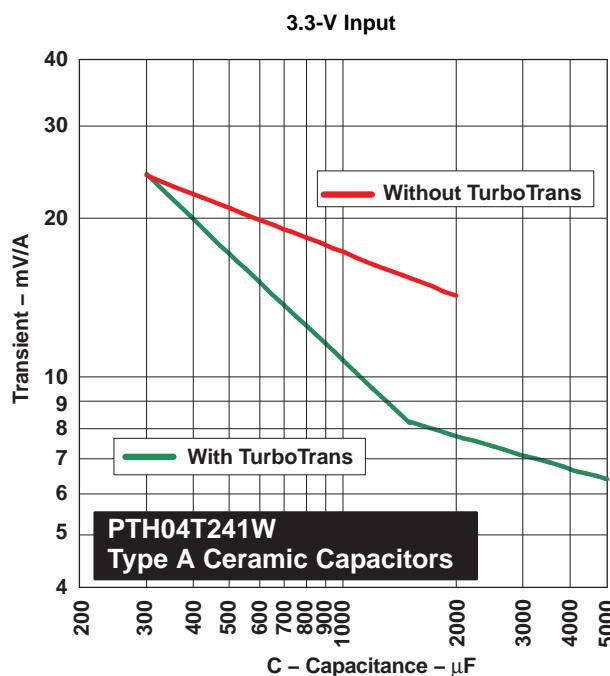


Figure 11. Capacitor Type A,
 $100 \leq C(\mu\text{F}) \times \text{ESR}(\text{m}\Omega) \leq 1000$
(e.g. Ceramic)

Table 4. Type A TurboTrans C_O Values and Required R_{TT} Selection Table

Transient Voltage Deviation (mV)			5-V Input		3.3-V Input	
25% load step (2.5 A)	50% load step (5 A)	75% load step (7.5 A)	C_O Minimum Required Output Capacitance (μF)	R_{TT} Required TurboTrans Resistor (k Ω)	C_O Minimum Required Output Capacitance (μF)	R_{TT} Required TurboTrans Resistor (k Ω)
60	120	180	300	open	300	open
50	100	150	340	232	390	97.6
40	80	120	500	40.2	550	30.1
30	60	90	770	12.4	840	9.76
25	50	75	1030	5.11	1100	4.02
20	40	60	1460	0.274	1700	short
18	36	54	2420	short	2830	short

R_{TT} Resistor Selection

The TurboTrans resistor value, R_{TT} can be determined from the TurboTrans programming, see [Equation 2](#)

$$R_{TT} = 40 \times \frac{\left[1 - (C_O/1500)\right]}{\left[\left(5 \times C_O/1500\right) - 1\right]} \quad (\text{k}\Omega) \quad (2)$$

Where C_O is the total output capacitance in μF . C_O values greater than or equal to $1500 \mu\text{F}$ require R_{TT} to be a short, 0Ω . (R_{TT} results in a negative value when $C_O > 1500 \mu\text{F}$).

To ensure stability, a minimum amount of output capacitance is required for a given R_{TT} resistor value. The value of R_{TT} must be calculated using the minimum required output capacitance determined from the capacitor transient response charts above.