

RC, RL, RCL FORMULAE & CIRCUITS

USAOMMCS X-14319
Revised Jan 2002

TYPE OF CIRCUIT	TC/PW RATIO				
	100	10	1	10	100
RC	—	—	—	—	—
EA EA	—	—	—	—	—
ER EL	—	—	—	—	—
EC ER	—	—	—	—	—

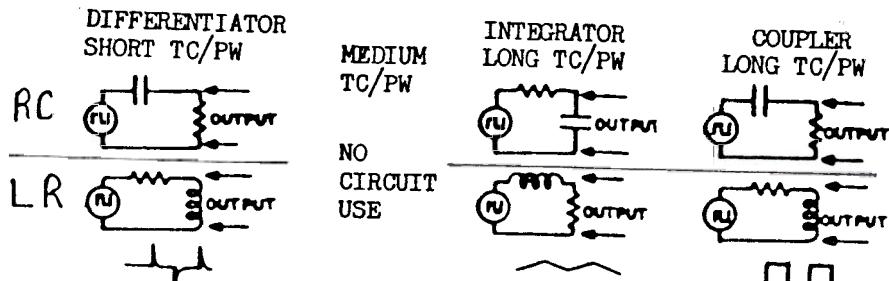
TC/PW Ratio

SHORT: EQUAL TO OR LESS THAN 1/10
MEDIUM: FROM 1/10 TO 10/1 (NOT USED)
LONG: EQUAL TO OR GREATER THAN 10/1

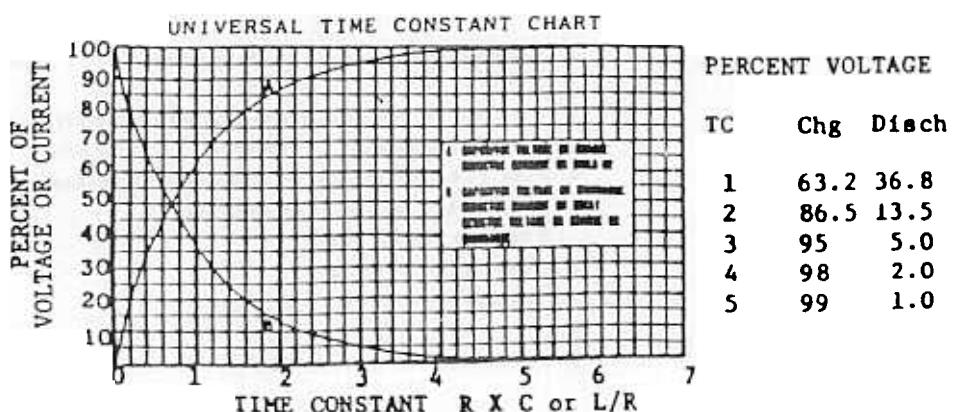
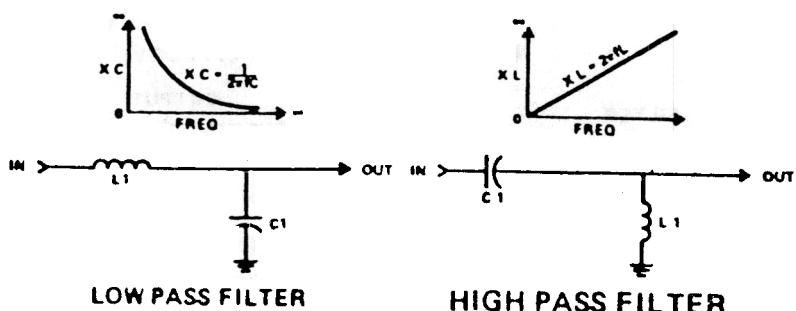
$$TC = RC \quad TC = \frac{L}{R} \quad PW = \frac{1}{2f}$$

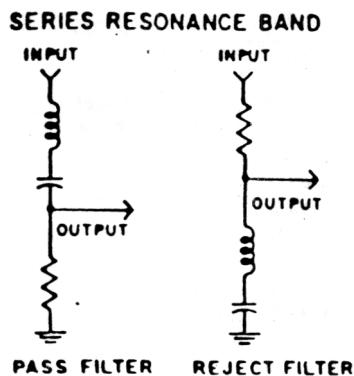
For a symmetrical square wave

DIFFERENTIATOR A CIRCUIT THAT CHANGES A SQUARE WAVE INTO A PEAKED WAVE.
INTEGRATOR A CIRCUIT THAT CHANGES A SQUARE WAVE INTO A triangle wave.
COUPLER OUTPUT WAVE FORM IS IDENTICAL TO INPUT WAVE FORM.
PULSE WIDTH THE DURATION OF A PULSE EXPRESSED IN TIME. THE TIME BETWEEN THE LEADING EDGE AND THE TRAILING EDGE
TRANSIENT A TRANSIENT IS A CHANGING VOLTAGE OR CURRENT FROM ONE STEADY STATE TO ANOTHER. THE TERM TRANSIENT HAS BEEN EXPANDED TO INCLUDE ANY NONSINUSOIDAL VOLTAGE.



COUPLER CIRCUIT OUTPUT WAVE SHAPE IS IDENTICAL TO THE INPUT WAVE SHAPE THEREFORE THE TC IS VERY LONG.





			Above f_r
			INDUCTIVE
SERIES	$X_C > X_L$ $E_C > E_L$	$X_C = X_L$ $E_C = E_L$	$X_L > X_C$ $E_L > E_C$
	[decrease] Z increase	[maximum] Z minimum	[decrease] Z increase
PARALLEL	$X_C > X_L$ $I_L > I_C$	$X_C = X_L$ $I_C = I_L$	$X_L > X_C$ $I_C > I_L$
	[increase] Z decrease	[minimum] Z maximum	[increase] Z decrease
	INDUCTIVE	RESISTIVE	CAPACITIVE

PASS FILTER REJECT FILTER

BANDWIDTH-QUALITY BAND PASS CIRCUITS

