EVALUATION ENGINEERING

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CAPACITOR GUIDE

The Capacitor Guide on the reverse side of this issue, is an attempt to furnish comparative information on commercially available fixed capacitors. Interpretation of the Guide should be made with the following qualifications:

- 1. The " μ F-Volt per cubic inch" rating does not imply availability. For example, the "button" mica capacitor is available neither in the 12μ F-volt range nor in the one cubic inch size.
- 2. The 'Maximum Leakage' ratings for electrostatic capacitors are derived as follows:

IR x C = K
$$\mu$$
F-M Ω (as specified)
Leakage current = $\frac{V}{IR}$

$$= \frac{C}{C} \times \frac{V}{IR} = \frac{CV}{C \times IR} = \frac{CV}{K}$$

- 3. "Closest Tolerance" means the approved tightest tolerance. The commercially available "1%" metallized polycarbonate capacitor in non-hermetic case has not been approved.
- 4. "Drift" means the maximum capacitance change in life-load after moisture-resistance test.
- 5. "Failure Rate" is computed from reported failures and allotment quantities. It is understood that not all failures are reported. On the other hand, some failures are not related to component reliability. The polystyrene capacitor P/N 285-0591 failures were due to excessive operating current.

All special purpose capacitors are excluded here, so are the TEKTRONIX-made capacitors. The failure rate for TEKTRONIX-made capacitors is about 40 parts per million. The "Remarks" are brief and oversimplified. Some parameters such as "dissipation factor" or "equivalent series resistance" are omitted because they do not lend themselves to simplification.

For further information, please call Ext 7264.

CAPACITOR GUIDE

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ТҮРЕ	MAXIMUM CAPACITANCE	STANDARD VOLTAGE	μF — VOLT PER. CU. IN.	MAXIMUM LEAKAGE	CLOSEST TOLERANCE	DRIFT IN LIFE	T. C. -20° to +85°C	FAILURE RATE 1968	REMARKS
		(Volt DC)		C in µF V in Volt	+ and -		P/M/C°	P/M	
CERAMIC TUBULAR									
"NPO" Temp. Compensating	68pF 1130pF	100-	1.5 30	0.01μΑ	1% or 0.1pF	0.5pF 5%	0 ± 30 P100/N5600	υ _l	Low current capability.
"Hi-K"	0.01µF	500	250	0.05µA	5%	20%		,	"Hooky" in "Hi—K"
CERAMIC DISC									
"NPO" Temp. Compensating	140pF 4200pF	100-	1.5 50	Απ10.0	%!	1%	0 ± 30	48	Low current. Affected
"Hi-K"	0. 1µF	6KV	600	0.05μΑ	5%	20%		į	phonic noise.
REDUCED CERAMIC	2.2μF	3-25	75	600µA	20%	20%	(757)	4 (+)	Voltage sensitive
MONOLITHIC CERAMIC									
"NPO"	0.033µF	100-400	70	0.2CVpA	0.1%	0.5%	0 ± 30		Limited current
"Stable"	lμF	100-300	500	0.4CVpA	10%	15%	W5R	23	capability.
General Purpose	10μF	25-300	5,000		20%	20%	(x5V)		
PORCELAIN	0.01μF	50-2500	8	10CVpA	1% or 1/4pF	1%	0 ± 25 or N100	None Reported	Rated 22 amps R.F.
MICA									
Molded Dipped	0.051µF 0.15µF	100-2500 100-5000	12 15	СVрА	1/2% or 1/2pF	0.5%	+70 - 0 ^{to ±} 200	7	Noticeable dielectric
виттоп	5400pF	350-500	12	TOnA	5%	5%	± 100	(40)	absorption.
FILM (NONHERMETIC)									
Mylar	2µF	100-1000	230	15CVpA	5%	5%	+500	72	Electrical-stress
Polystyrene	10µF	100-600	60	1/CVpA 4CVpA	(2%)	(1%) 0.25%	+200	Incomp.	noise. "Soak".
ELECTROLYTIC (POLAR.)									
	18,000µF		15,000	6√CV m∆	+50%	20%	AUV-	100	Limited shelf life.
Tantalim Solid	>1 Farad	6-125	34 000		-10%	20%	100		Noticeable power loss.
Tantalum, Wet	1,500µF		51,000	0.1/CV µA	10%	10%	+20%	5	Contains sulphuric acid
	3,500µF		45,000	ζ(V	15%	15%	-40%	148	\$9 per uF at 450V list.