



EMP Protection Units

PCM Data Lines to 2 MBit/s

Series/Type: B84320Z0010H034

Date: January 2004

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General

The EMP protection unit is sequenced, i.e. to use simultaneously the benefits of inert-gas-filled surge arresters (extremely high surge capability) and of varistors (fast response). They are isolated by a series inductor.

The arrester is housed in a plug-in socket, so it can be removed and tested without detaching the lines.

Note on voltage figures:

The maximum voltage on the filter output depends primarily on the rise time until the arrester responds. For this reason the maximum voltage on the filter output is stated in the following table as a function of the rising edge dv/dt of the pulse.

Technical data

Rated voltage	V_R	10	V	
Rated frequency	f_R	0 ... 2	Mbit/s	Pass bandwidth at Z_L
Rated current	I_R	100	mA	Referred to +40 °C ambient temperature
Number of lines		10		Pairs
Line impedance	Z_L	124	Ω	
Maximum DC resistance	R_{max}	<2.2	Ω	Per line
Permissible ambient temperature	T_A	-25/+40	°C	
Climatic category (EN 60068-1)		25/085/56		-25 °C/+85 °C/56 days damp heat test
Approx. weight		300	g	
Nominal DC spark-over voltage	V_{sdCN}	<800	V	
Nominal surge current (8/20 μ s)		5	kA	Line/line
		10	kA	Pair/case
Suppression condition		$I < I_R$		

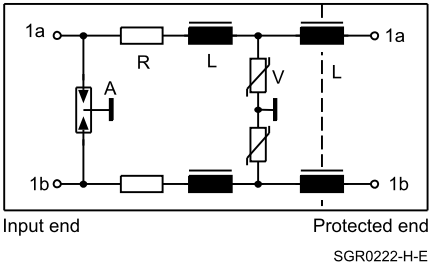
Maximum voltage on filter output:

At rising edge	Unsymmetrical	Symmetrical
$dv/dt = 0.1 \text{ kV}/\mu\text{s}$	$\hat{v} \leq 60 \text{ V}$	$\hat{v} \leq 8 \text{ V}$
$dv/dt = 1 \text{ kV}/\mu\text{s}$	$\hat{v} \leq 90 \text{ V}$	$\hat{v} \leq 15 \text{ V}$
$dv/dt = 1 \text{ kV/ns}^1)$	$\hat{v} \leq 70 \text{ V}$	$\hat{v} \leq 40 \text{ V}$

1) Typical test pulse: rise time 10 ns, time to half value 1500 ns, charge voltage min. 50 kV, source impedance 90 Ω

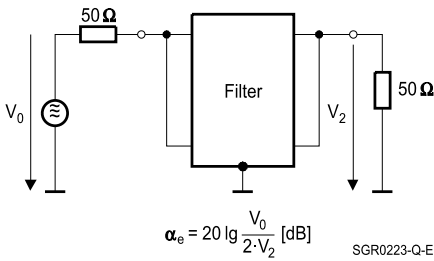
Circuit diagram

(only one of 10 pairs shown)

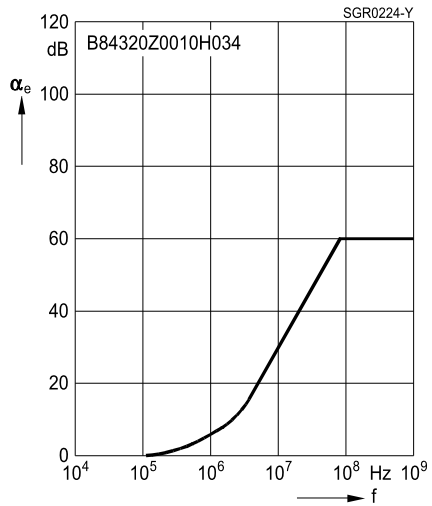


Insertion loss α_e per pair (typical values at $Z = 50 \Omega$)

Measurement circuit

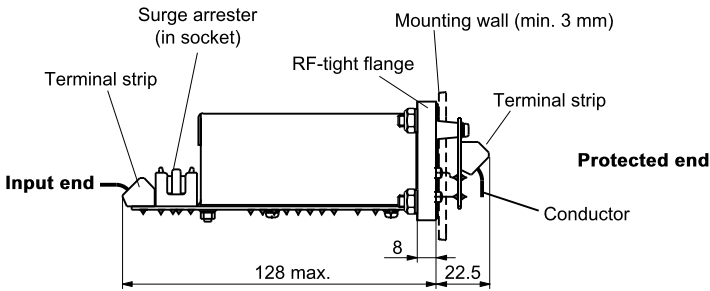


Asymmetrical measurement circuit
to MIL-STD-220A



Dimensional drawing

Side view

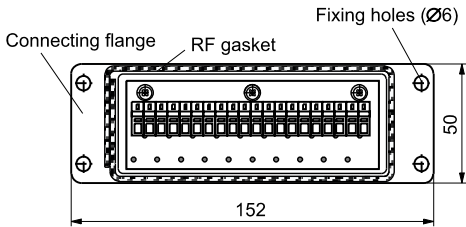


SGR0219-X-E

Terminal strip:

Terminals with cage strain system, suitable for conductors 0.08 ... 2.5 mm²

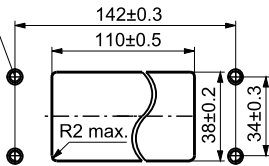
Front view of protected end



SGR0220-1-E

Installation section and attachment

Welded bolt M5x16 min. (recommended)



SGR0221-9-E