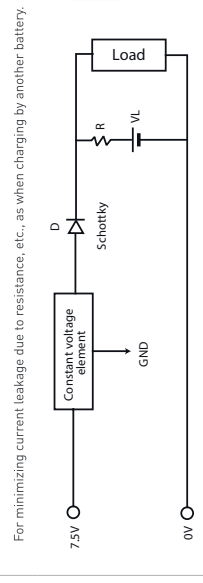
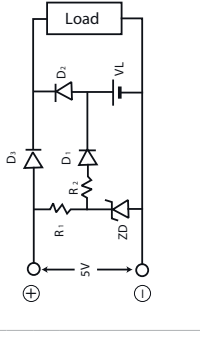
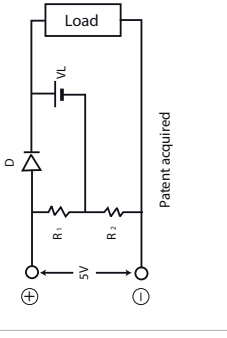
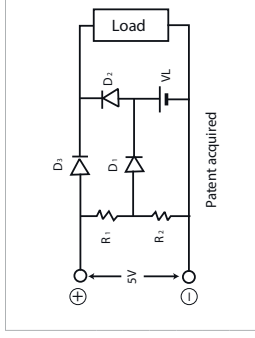


Reference: Examples of charging circuits



For minimizing current leakage due to resistance, etc., as when charging by another battery.

REG	D
3.7V	MA2J728

For details, refer to the constant voltage element specifications.

Standard circuits

D₂: select a diode of small inverse current (I_{ik}=1µA below/5V)
 D₁: MA3X716 (Diode type code)
 D₂: MA3X704, MA2J728

	R ₁	R ₂	Charge current (max.)
VL-621	2.2kΩ	5.6kΩ	0.2mA
VL-1220	750Ω	1.8kΩ	0.5mA
VL-2020	200Ω	510Ω	1.5mA
VL-2320, VL-2330	150Ω	390Ω	2.0mA
VL-3032	48Ω	180Ω	4.0mA

Simple economical circuits

D: MA2J728 (Very small reverse current)

Load with 5V applied	1mA below	
D,Vf	0-0.30V	
	R ₁	R ₂
VL-621	6.2kΩ	2.4kΩ
VL-1220	1500Ω	560Ω
VL-2020	470Ω	180Ω
VL-2320, VL-2330	390Ω	150Ω
VL-3032	180Ω	68Ω

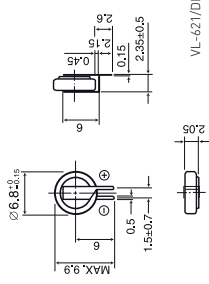
Vf of D will be different from the value given above if a current in excess of 1 mA flows to the load during operation. Compensation must be provided by the resistors in such cases.

ZD	D ₁	R ₁		
A	MAZ30360L	MA3X704	300	Common to all types
B	MAZ30360H	MA2J728	270	

Type	VL-3032	VL-2330	VL-2320	VL-1220	VL-621
A	Not required	Not required	470Ω	500Ω	1.5kΩ
R ₂				560Ω	1.6kΩ

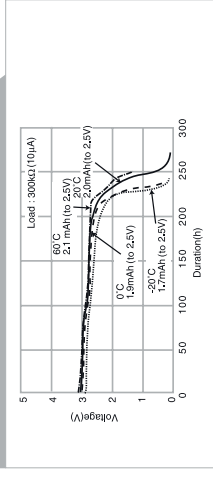
D₂: select a diode of small inverse current (I_{ik}=1µA below/5V)

VL-621

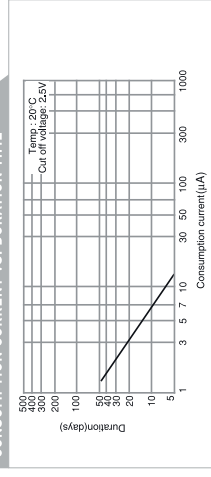


SPECIFICATIONS	
Name	VL-621
Nominal voltage (V)	3
Nominal capacity (mAh)	1.5
Continuous drain (mA)	0.01
Operating temperature (°C)	-20 to +60
Weight (g)	0.3

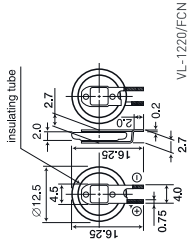
DISCHARGE TEMPERATURE CHARACTERISTICS



CONSUMPTION CURRENT VS. DURATION TIME

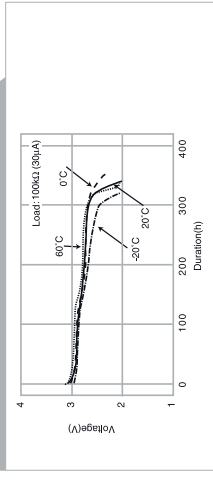


VL-1220

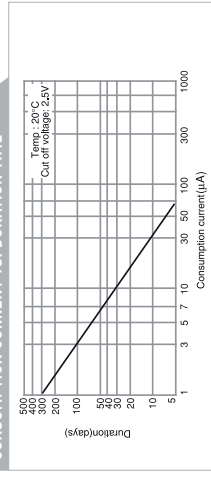


SPECIFICATIONS	
Name	VL-1220
Nominal voltage (V)	3
Nominal capacity (mAh)	7.0
Continuous drain (mA)	0.02
Operating temperature (°C)	-20 to +60
Weight (g)	0.8

DISCHARGE TEMPERATURE CHARACTERISTICS



CONSUMPTION CURRENT VS. DURATION TIME

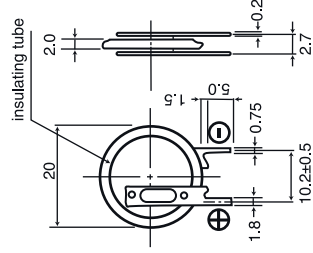


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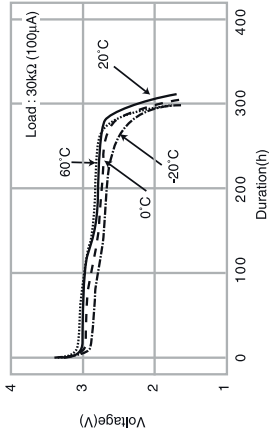
POHL Electronic GmbH
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VL-2020

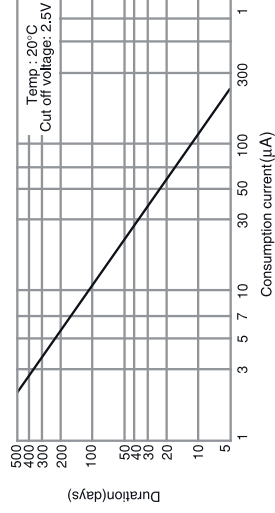


SPECIFICATIONS	
Name	VL-2020
Nominal voltage [V]	3
Nominal capacity [mAh]	20.0
Continuous drain [mA]	0.07
Operating temperature [°C]	-20 to +60
Weight [g]	2.2

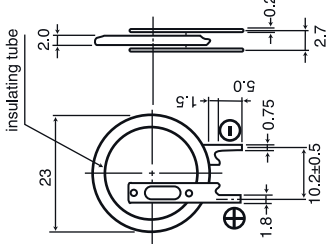
DISCHARGE TEMPERATURE CHARACTERISTICS



CONSUMPTION CURRENT VS. DURATION TIME

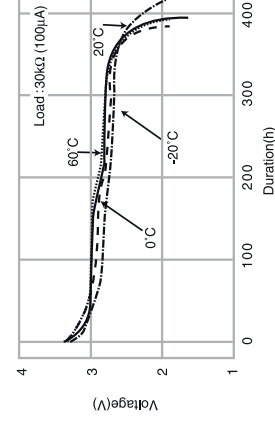


VL-2320

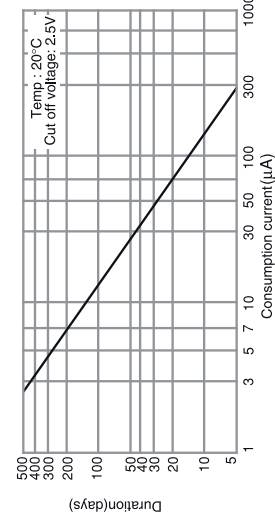


SPECIFICATIONS	
Name	VL-2320
Nominal voltage [V]	3
Nominal capacity [mAh]	30.0
Continuous drain [mA]	0.1
Operating temperature [°C]	-20 to +60
Weight [g]	2.7

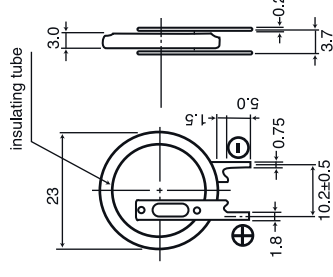
DISCHARGE TEMPERATURE CHARACTERISTICS



CONSUMPTION CURRENT VS. DURATION TIME

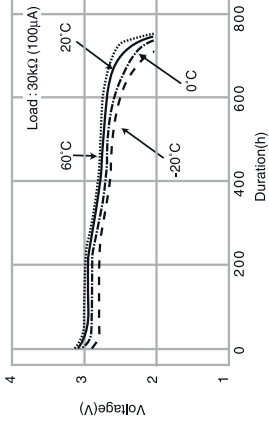


VL-2330

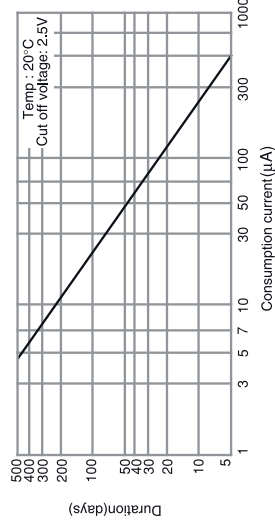


SPECIFICATIONS	
Name	VL-2330
Nominal voltage [V]	3
Nominal capacity [mAh]	50.0
Continuous drain [mA]	0.1
Operating temperature [°C]	-20 to +60
Weight [g]	3.5

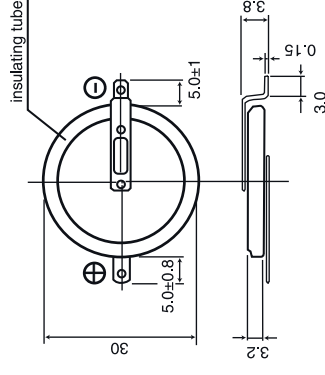
DISCHARGE TEMPERATURE CHARACTERISTICS



CONSUMPTION CURRENT VS. DURATION TIME

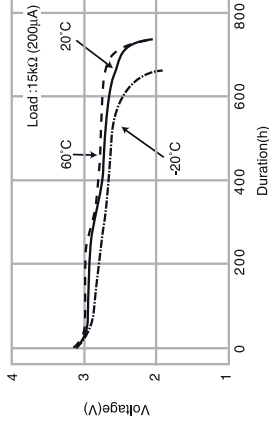


VL-3032

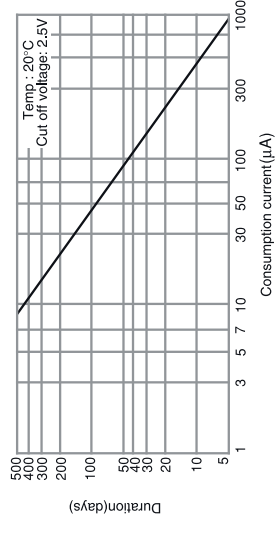


SPECIFICATIONS	
Name	VL-3032
Nominal voltage [V]	3
Nominal capacity [mAh]	100.0
Continuous drain [mA]	0.2
Operating temperature [°C]	-20 to +60
Weight [g]	6.2

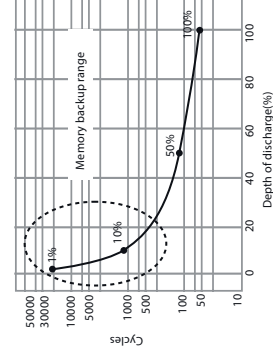
DISCHARGE TEMPERATURE CHARACTERISTICS



CONSUMPTION CURRENT VS. DURATION TIME



CYCLE LIFE (VL SERIES)



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