



FEATURES

High Voltage – Very Fast Charge/Discharge – High Power Density –
RoHS Compliant

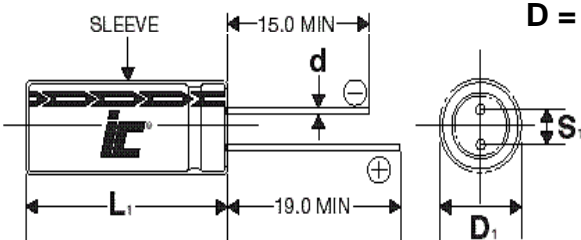
APPLICATIONS

Solar/Wind Energy Storage – Pulse Power – Energy Harvesting –
UPS Systems – Smart Electric Meters

| | | | |
|---|--|--------------------------------------|-------------|
| Operating Temperature Range | | -25°C to +60°C | |
| Storage Temperature | | -40°C to +60°C | |
| Capacitance Tolerance @ 25°C | | ±20% | |
| Voltage (Vdc) | WVDC | 3.8 | 3.8V |
| | SVDC | 4.2 | |
| | Minimum | 2.2 | |
| Life Time | 1000 hours with rated voltage applied at 60°C | | |
| | Capacitance change | ±50% of initially measured values | |
| | ESR | <1000% of initially specified values | |
| | Leakage current | ≤100% specified maximum value | |
| Shelf Life | 1000 hours with no voltage applied at 60°C | | |
| | Capacitance change | ±30% of initially measured values | |
| | ESR | <200% of initially specified values | |
| Life Cycles (25°C) 1 cycle = Charge / Discharge from 3.8~2.5VDC | 250,000 cycles | | |
| | Capacitance change | ±30% of initially measured values | |
| | ESR change | <200% of initially specified values | |

[RoHS Compliant](#)

810a Recognized



D = 10 to 16mm

| Lead spacing VS. Case diameter | | | |
|--------------------------------|-----|------|-----|
| D | 10 | 12.5 | 16 |
| S | 5.0 | 5.0 | 7.5 |
| d | 0.6 | 0.6 | 0.8 |
| α | 2.0 | 2.0 | 2.0 |

$$L_1 = L + \alpha \text{ mm}$$

$$D_1 = D + 0.5 \text{ mm}$$

$$S_1 = S \pm 0.5 \text{ mm}$$

Notes:

- Maintain balanced voltages when used in multiple series or parallel connections. (Consult CDE engineering for guidance)
- When using metal tooling, trim and bend leads separately. Parts store a charge. Avoid shorting leads. (Consult CDE engineering for guidance)
- Manual soldering temperature should not exceed 350°C and soldering time should not exceed 4 seconds. (Wave and reflow soldering not recommended)

[Full Material Handling Guidelines](#)

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VPF

High pulse power, extends
battery life

| WVDC | Capacitance (F) | IC PART NUMBER | Weight (grams) | Volume (mL) | Dims DxL LxHxT (mm) | Lead Spacing S (mm) | Lead Diameter d (mm) |
|------|-----------------|----------------|----------------|-------------|---------------------|---------------------|----------------------|
| 3.8 | 40.0 | VPF406M3R8 | 2.5 | 1.26 | 10x16 | 5 | 0.6 |
| 3.8 | 50.0 | VPF506M3R8 | 2.1 | 1.57 | 10x20 | 5 | 0.6 |
| 3.8 | 70.0 | VPF706M3R8 | 2.3 | 1.96 | 10x25 | 5 | 0.6 |
| 3.8 | 120.0 | VPF127M3R8 | 3.91 | 3.07 | 12.5x25 | 5 | 0.6 |
| 3.8 | 220.0 | VPF227M3R8 | 7 | 5.03 | 16x25 | 7.5 | 0.8 |

| WVDC | Capacitance (F) | IC PART NUMBER | MAX Current (A) (1 Sec.) | Maximum Continuous Current (A) ($\Delta T=15^{\circ}C$) | Short Circuit Current (A) | ESR AC 1 kHz (m Ω) | DC ESR (m Ω) 20°C | Max stored energy (mWh) | LC (μA), (72 hrs) |
|------|-----------------|----------------|--------------------------|---|---------------------------|----------------------------|---------------------------|-------------------------|--------------------------|
| 3.8 | 40.0 | VPF406M3R8 | 1 | 0.15 | 6.9 | 250 | 550 | 53 | 4 |
| 3.8 | 50.0 | VPF506M3R8 | 2.8 | 0.5 | 8.4 | 200 | 450 | 57 | 6 |
| 3.8 | 70.0 | VPF706M3R8 | 4.9 | 0.7 | 15.2 | 100 | 250 | 80 | 8 |
| 3.8 | 120.0 | VPF127M3R8 | 6.2 | 1.2 | 19 | 80 | 200 | 137 | 12 |
| 3.8 | 220.0 | VPF227M3R8 | 12.4 | 2.2 | 38 | 60 | 100 | 253 | 25 |

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