NORTHWIRE® INC
A LEMO Group Company

BPTM Cable Data Sheet

This data sheet summarizes cable constructions for flexible cables used in portable power applications such as Backup Power Transfer Meters (BPTM), Backup Power Transfer Switches (BPTS), and Vehicle-to-Home (V2H) systems.

Cord characteristics listed in this document are based on Underwriters Laboratories (UL) and National Electrical Code (NEC) Article 400. These letters follow UL 62 naming conventions for construction, insulation/jacket material, voltage rating, and environmental resistance.

Below is a comparison chart of the UL flexible-cord designations.

UL 62 Flexible Cord Comparison Chart					
Cord Type	**Voltage**	**Material Type**	**Oil Resistance***	**Weather / Outdoor Rating**	**Temperature Range**
SJT	300 V	Thermoplastic (PVC)	-	-	–40°C to 105°C
SJTW	300 V	PVC	-	W	–40°C to 105°C
SJTO	300 V	PVC	-	-	–40°C to 105°C
SJTOW	300 V	PVC	O	W	–40°C to 105°C
SJTOOW	300 V	PVC	OO	W	–40°C to 105°C
SJE	300 V	Elastomer (TPE)	-	-	–50°C to 105°C
SJEW	300 V	TPE	-	W	–50°C to 105°C
SJEO	300 V	TPE	O	-	–50°C to 105°C
SJEOW	300 V	TPE	O	W	–50°C to 105°C
SJEOOW	300 V	TPE	OO	W	–50°C to 105°C
ST	600 V	PVC	-	-	–40°C to 105°C
STW	600 V	PVC	-	W	–40°C to 105°C
STO	600 V	PVC	O	-	–40°C to 105°C
STOW	600 V	PVC	O	W	–40°C to 105°C
STOOW	600 V	PVC	OO	W	–40°C to 105°C
SE	600 V	TPE	-	-	–50°C to 105°C

SEW	600 V	TPE	-	W	–50°C to 105°C
SEO	600 V	TPE	O	-	–50°C to 105°C
SEOW	600 V	TPE	O	W	–50°C to 105°C
SEOOW	600 V	TPE	OO	W	–50°C to 105°C

**OO indicates that both insulation and jacket material are oil resistant.*

ST (PVC), SE (TPE) and SO (EPMD) are commonly used material for flexible power cords used in backup power systems. **Listed below are the advantages and disadvantages of each.**

TPE vs. PVC vs. EPDM		
Material Type	**Advantages**	**Disadvantages**
ST (PVC)	**Cost-effective:** PVC jacket/insulation is less expensive to manufacture. **Good basic performance:** Works well for everyday power cords and consumer appliances. **Broad compatibility:** Common in plug-into-wall cords where movement / flexing is limited.	**Less flexible in cold/weather extremes:** PVC gets stiff in cold and can crack over time. **Narrower operating temp range:** Not ideal for continuous flex or very hot conditions. **Toxic fume emissions:** Although flame retardant, PVC emits toxic fumes and dense toxic smoke when burned, creating a safety risk in enclosed spaces.
SE (TPE)	**Excellent flexibility:** TPE stays pliable in cold and flexes repeatedly without fatigue. **Wide temperature range:** Performs well in both hot and cold conditions. **Reliable and safe performance:** Provides safe, reliable performance through superior insulation, and flame and abrasion resistance.	**Higher cost:** TPE materials are pricier than PVC. **Dirt and debris attraction:** TPE surfaces tend to be tackier and more prone to collecting dirt and dust than PVC. **Chemical and oil degradation:** Heavy exposure to industrial oils and solvents can cause the material to swell or degrade.
SO (EPDM)	**Weather & UV resistance:** Resists degradation from rain, snow, ozone, and sunlight. **Wide temperature range:** Performs well in hot and cold conditions. **Excellent flexibility & durability:** Bends and moves easily without cracking.	**Non-recyclable:** As a thermoset material, EDPM is not recyclable. **Poor petroleum-based oil resistance:** EPDM degrades or has poor resistance to petroleum-based oils, fuels, fluids, mineral oils and silicone oils. **Strip-ability issues:** The jacket is difficult to strip cleanly, sometimes leaving small remnants that can lead to poor electrical contact.