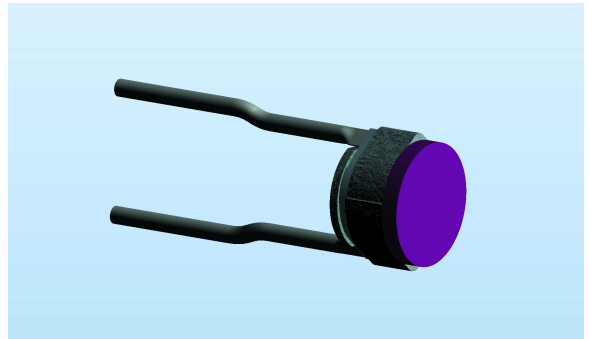


ES-440 (High Current) LaB₆ Crystal

FEATURES / OPTIONS:

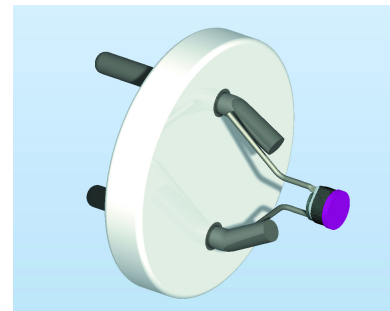
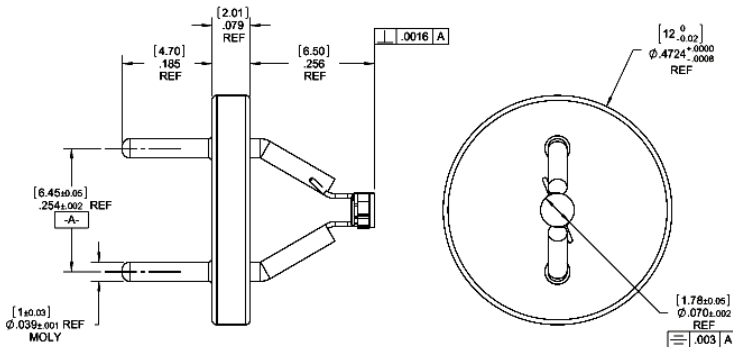
- THE SAME HIGH PERFORMANCE AS THE MODEL ES-423E LaB₆ CATHODE
- CYLINDRICAL CUT CRYSTAL WITH LARGER EMITTING SURFACE PROVIDES HIGHER BEAM CURRENTS
- EXCEPTIONAL STABILITY
- THERMAL / CHEMICAL / MECHANICAL / ELECTRICAL PRECISION MACHINED MOUNTING
- HIGH OVER-TEMPERATURE TOLERANCE
- HIGH BRIGHTNESS / LOW ENERGY SPREAD
- <100> ORIENTED SINGLE-CRYSTAL
- BEST QUALITY / HIGH PURITY MATERIAL



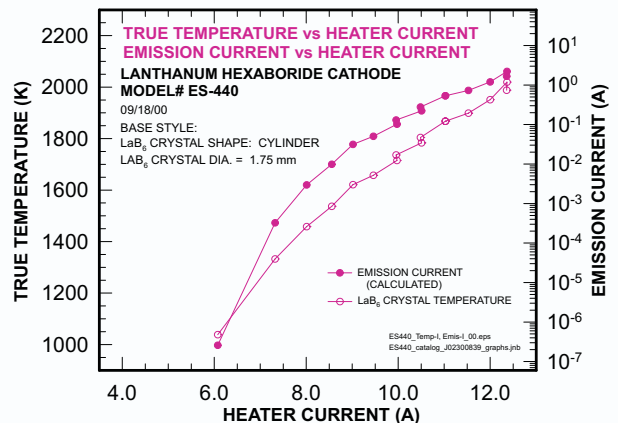
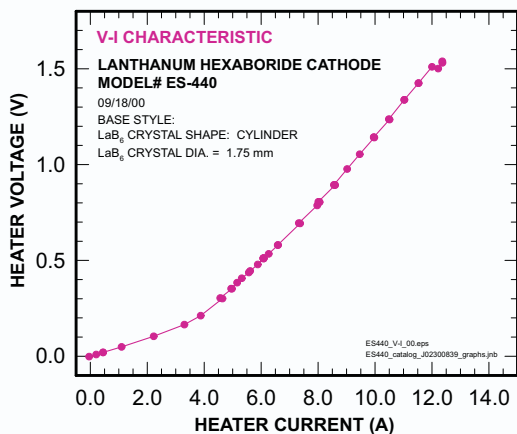
ES-440 LaB₆ Cathode (single-crystal, 1.78 mm dia.) shown unmounted, available mounted on custom bases (10 X)

ES-440	
CATHODE MATERIAL	Lanthanum Hexaboride (LaB ₆) single crystal
CATHODE SHAPE	Flat cylinder
SIZE	0.070 in dia. x 0.011 in. thick, standard (1.78 mm dia. x 0.25 mm thick)
HEATER	Refractory metal
EMISSION AREA	0.0249 cm ²
TYPICAL HEATING VOLTAGE/CURRENT	Approx. 1 V, 10 A (Voltage measured at cathode)
CATHODE LOADING	Up to 30 A/cm ² High loadings result in reduced lifetime
WORK FUNCTION	2.69 eV
OPERATING TEMP	Approx. 1700 K to 1900 K
ENERGY SPREAD	Approx. 0.4 eV
LIFETIME	Varies with conditions/vacuum/heating current
VACUUM LEVEL	10 ⁻⁷ torr or better, recommended
POWER SUPPLY CAPABILITY	Voltage regulated power supply recommended, 2 V, 12 A

The Kimball Physics ES-440 Lanthanum Hexaboride Cathode is a high-performance, resistively heated, thermionic electron source. This cathode uses a high quality LaB₆ crystal similar to the ES-423E Lanthanum Hexaboride Cathode. However, in the ES-440, the large, single crystal cylinder is cut to form a large planar emitting surface, which results in higher beam currents. The emitter is a 1.78 mm diameter (standard), oriented-single-crystal surface. The cathode is available mounted on an industry-standard AEI ceramic base or on a customer-specified base. AEI bases ground to a tighter tolerance (12 mm +0.2 mm, -0.0 mm) are available for special applications. All cathodes are shipped vacuum clean and ready to install.



LaB₆ single crystal cathode ES-440 mounted on an AEI base, custom bases available.



Typical performance; data for guidance only.