

Deep-Level Transient Spectroscopy (DLTS)

Deep-level transient spectroscopy (DLTS) is a very powerful tool to detect the defect concentration and thermal emission rate of semiconductor deep levels by measuring capacitance transients as a function of temperature. It normally used the Schottky diode or p-n junction as a probe. In the process, the probe is forward biased to fill the defects with free carriers by a pulse voltage. After the pulse, the defects start emitting trapped carriers due to thermal emission.

DLTS observes the capacitance of Schottky diode or p-n junctions, where the defect charge state recovery causes the capacitance transient when the temperature varies slowly. The frequency of the repetition of the pulse voltage multiplied by certain constant, depending upon the equipment, is called the rate window. A DLTS peak is generated when the thermal emission rate of the trap is the same as that of the rate window. Because of the strong temperature dependence of the trap emission rates, it is possible to resolve the emission from different traps using an appropriate emission rate window.

Related Products:



X-1AL ECONOMY

- Easy optical alignment
- All purpose
- Low cost



X-1SS HIGH PERFORMANCE

- Best for electrical, magnetic, and optical experiments



X-20 ULTRA-LOW VIBRATION

- Vibrations < 3-5 nm
- Quick and easy sample access via pop-off shroud
- High temperature stability

Cryostat Model	Type
DMX-1AL	CCR
FMX-1AL	CCR

Cryostat Model	Type
DMX-1SS	CCR
FMX-1SS	CCR
GMX-1SS	CCR
LT3-WMX-1SS	Flow

Cryostat Model	Type
CS202-DMX-20	CCR
CS204-DMX-20	CCR
CS210-GMX-20	CCR



LT4

- All-purpose, low cost flow cryostat
- Maintains the high cooling power of the LT3
- UHV option available

Cryostat Model	Type
LT4	Flow