

APPLICATION NOTE

ITC5723B: Low Voltage DUTs

When using the ITC5723B for gate charge testing of low voltage parts (< 30V), some distortion of the right edge of the plateau and the right hand inflection point of the waveform may be observed. A “normal” gate charge waveform will consist of three very straight line segments; any deviation of the plateau from a straight horizontal line would be considered distorted. (Note: it is sometimes necessary to operate the horizontal position control of the ‘scope in order to view ending portion of the waveform.)

This effect is due to the drain current regulators having insufficient voltage to regulate properly during the turn off of the DUT. To resolve this problem, it is necessary to install a zener diode, or transient protection diode on the DUT personality board to clamp the voltage presented to the DUT, then increase the power supply voltage during testing.

The diode may be soldered into the personality board in any of the locations C1-C6 that are unpopulated on a gate charge personality board. The lower foil will be positive for N-channel DUTs, so connect the cathode of the diode to the lead hole that has a cutout in the top foil. Conversely, for P-channel testing connect the diode’s cathode to the top foil hole. Normally, raising the V_{ds} in the test file to be 10-15V above the clamp voltage will be sufficient to allow proper current regulation.