



LinearDimensions
SEMICONDUCTOR

LND090A/B/C/D
Revolutionary LF-MCTs Replace
MOSFETs, Bipolars & IGBTs In Switching
Apps with only 1.9nC Gate Charge

GENERAL DESCRIPTION

Linear Dimensions introduces the revolutionary Linear Fast MCT (LF-MCT). A Linear Dimensions proprietary MCT construction (PATENTS PENDING) allows LF-MCTs for the first time to be used in fast switching applications where MOSFETs, bipolars & IGBTs are more commonly used.

LF-MCTs represent the highest current density of any switching pass element. In the past MCTs have had switching times in the 800ns+ range and been focused on high current applications. Linear Dimensions brings LF-MCTs to high frequency offline AC/DC and DC/DC switching applications with turn on times of <30ns and turn off times of <200ns (600V devices).

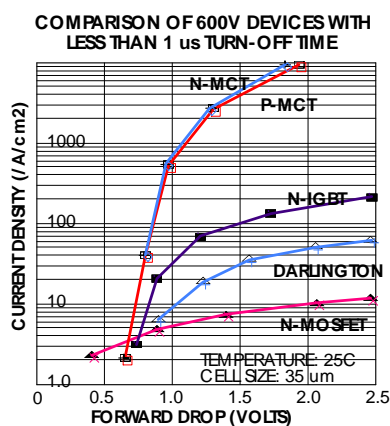
In AC/DC offline applications such as offline flyback converters or switching LED drivers, LF-MCTs require 1/3 the drive current of the MOSFETs typically used. Additionally, LF-MCTs require 1/3 to 1/8th the silicon area of a MOSFET for a similar voltage drop at rated current saving space and cost.

Fast LF-MCTs can be used as a replacement for IGBTs where they have a V_f that is as much as 40% lower than a typical IGBTs.

Although Fast LF-MCTs must be driven with a +/- gate voltage, the small current requirement allows the negative voltage to be generated from the output of a typical switching gate drive. Additionally, a positive or negative pulse will latch them on or off and a continuous voltage is not required.

The LND090 are packaged in lead free TO-252 packages or available as bare die

PASS ELEMENT CURRENT DENSITY



**Modelled Forward Drop Comparison
of MOSGated Power Devices**

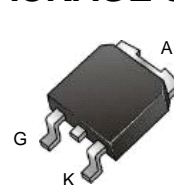
FEATURES

- 600V/1500V anode to cathode voltage
- Off leakage 30% of equivalent MOSFET
- High impedance MOSFET-like gate
- $V_g = \pm 5V$ gate drive, pulsed OK
- Turn off current:
 - 1A & 3A LF-MCTs (A,B)
 - 10A & 40A LF-MCTs (C,D)
- Low gate capacitance ~ 380pF
- Ultra fast rise times ~ 17ns
- Sub ~200ns fall times
- Silicon area reduced to as little as 30% of the silicon of a MOSFET with equivalent V_f
- Up to 10x the peak current capability of an equivalent MOSFET
- >40% lower forward V_f drop than IGBTs (1.3-1.6V vs. ~2.2V for IGBT)
- High current density >> 300 Amp Peak
- Lead free RoHS compliant TO-252 PKG
- Also available as bare die

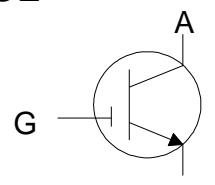
APPLICATIONS

- Crowbar protection circuits
- High-voltage surge suppressors
- Uninterruptible Power Supplies
- Capacitor discharge safety switches
- White Goods, Rice Cookers
- AC/DC Flyback Converters
- DC/DC Switching Applications
- Resonant switching
- Plasma Televisions
- Camera Strobe

PACKAGE & SYMBOL



D-Pak



LF-MCT

