



**Figure 3.62** Depletion capacitance: (a) characteristic curve; (b) idea of incremental capacitance.

where  $V_{j0}$  is the built-in barrier potential,  $C_{j0}$  is the *zero-voltage capacitance*, and  $m$  is a constant called the *grading coefficient*. For the junctions we have illustrated, where the doping concentration changes abruptly from  $N_a$  to  $N_d$  (abrupt junctions),  $m \approx 0.5$ . For junctions characterized by a gradual transition in doping concentration, called *grade*