



Turn-Off Time, Leakage Current and Reverse Recovery Current Under Conditions Other than the Datasheet

Application Note

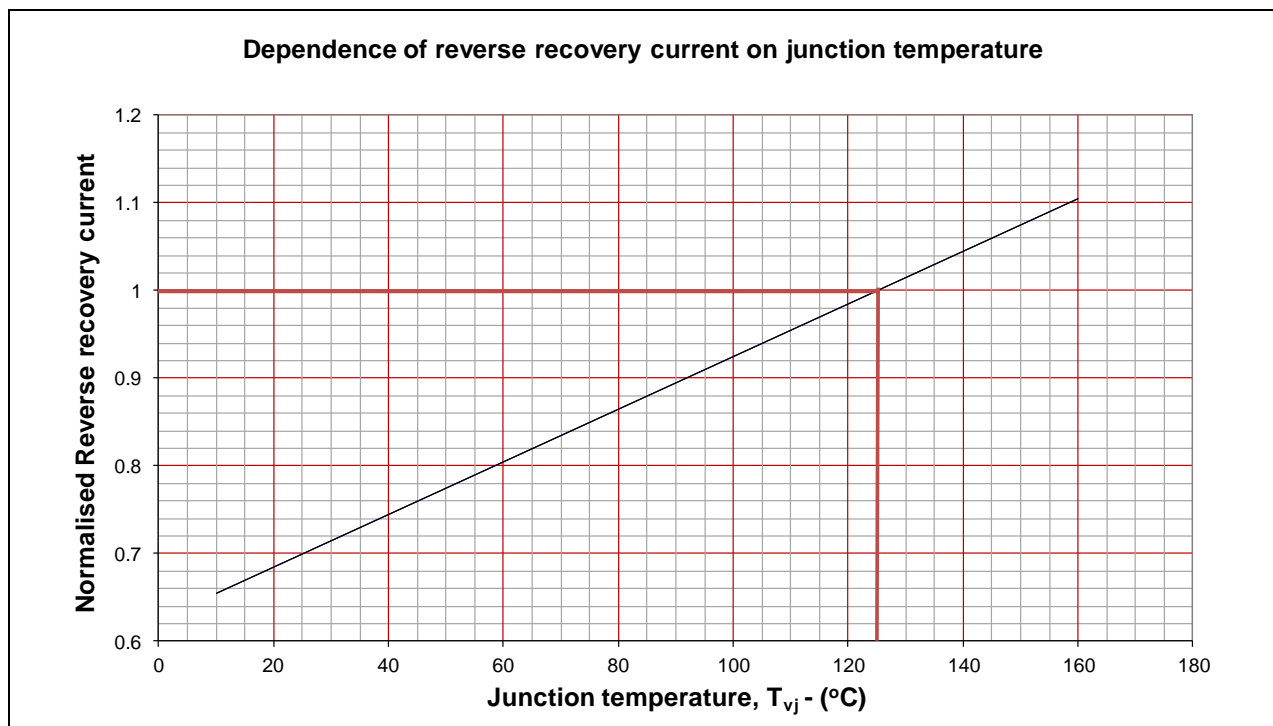
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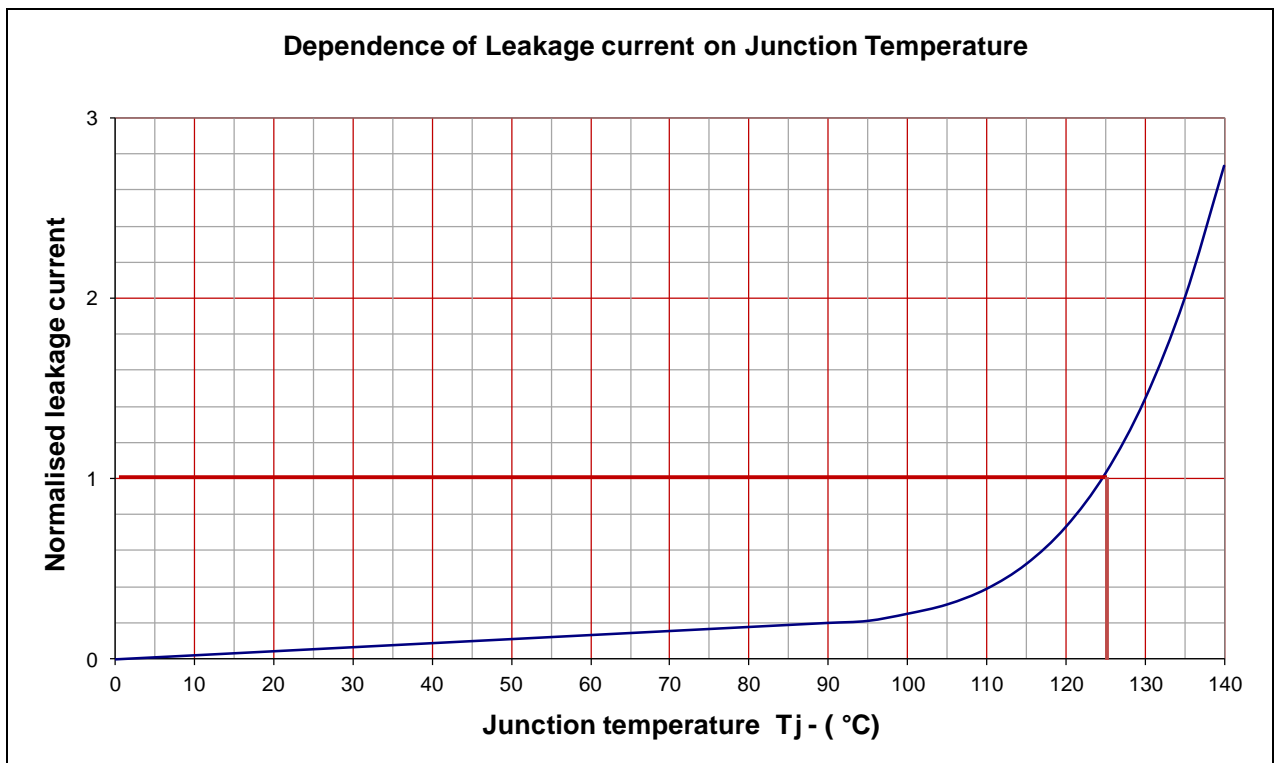
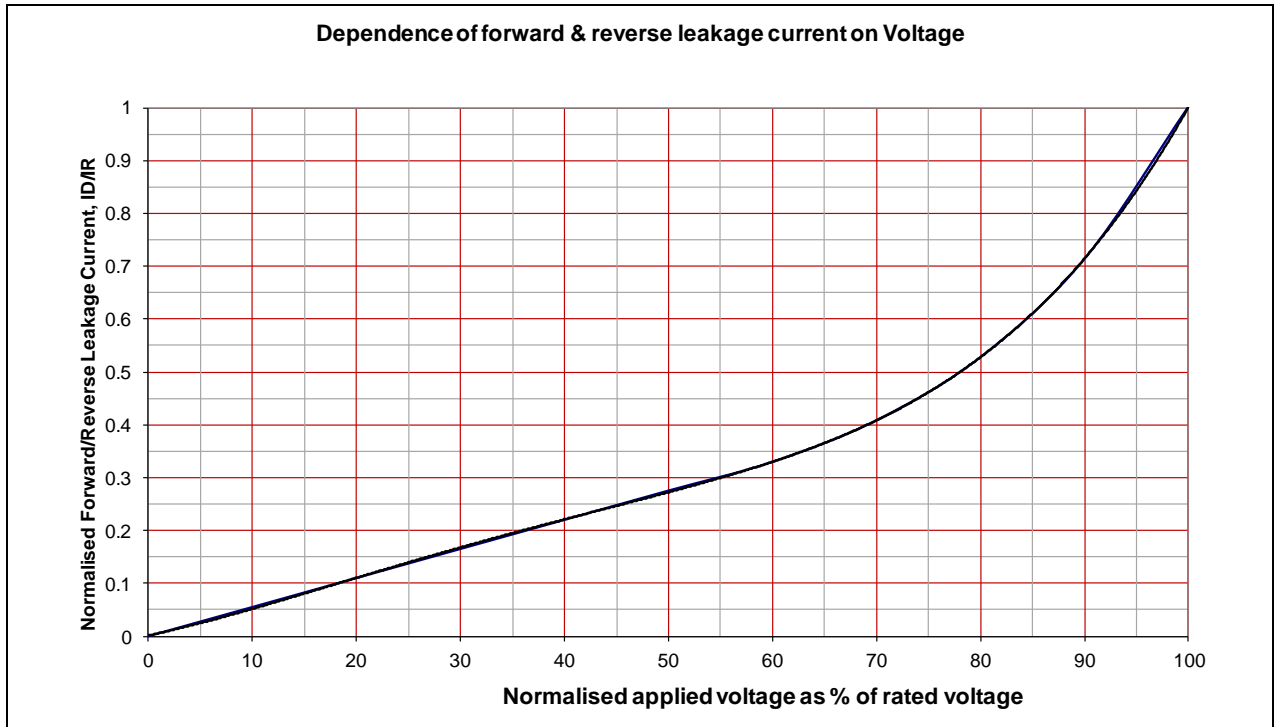
Author: Colin Rout

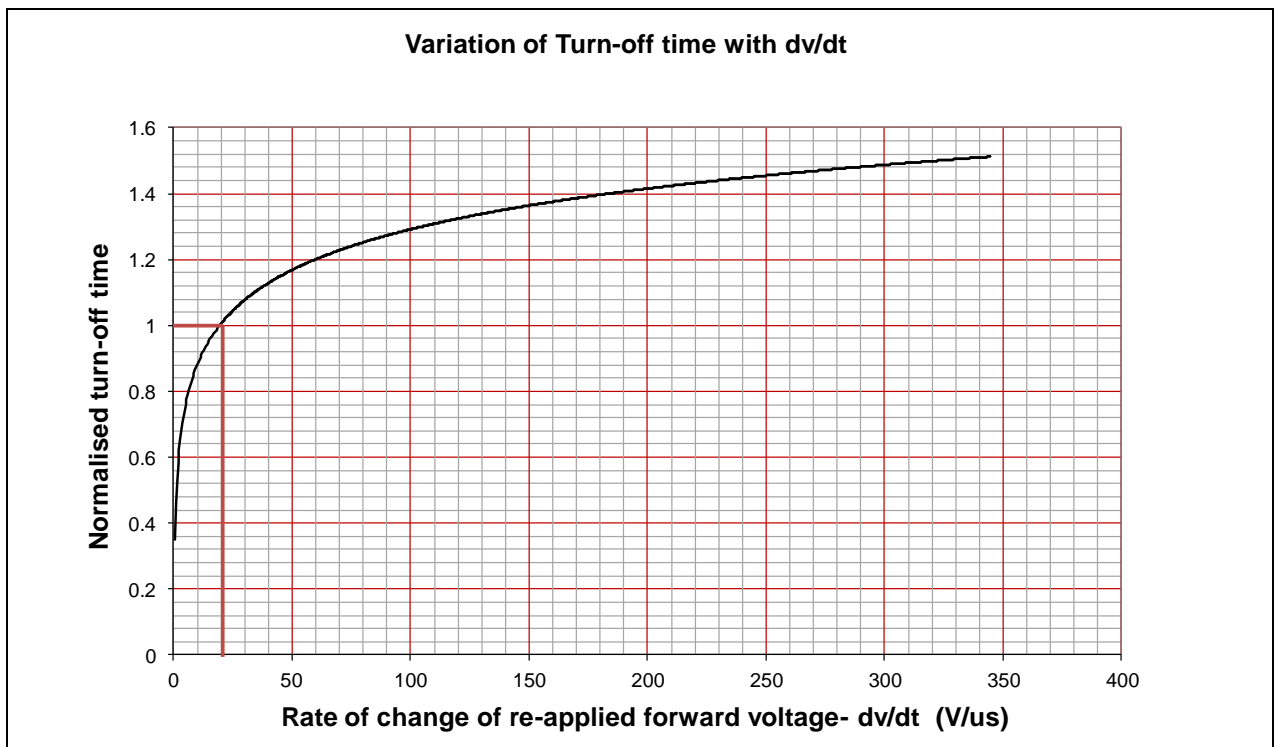
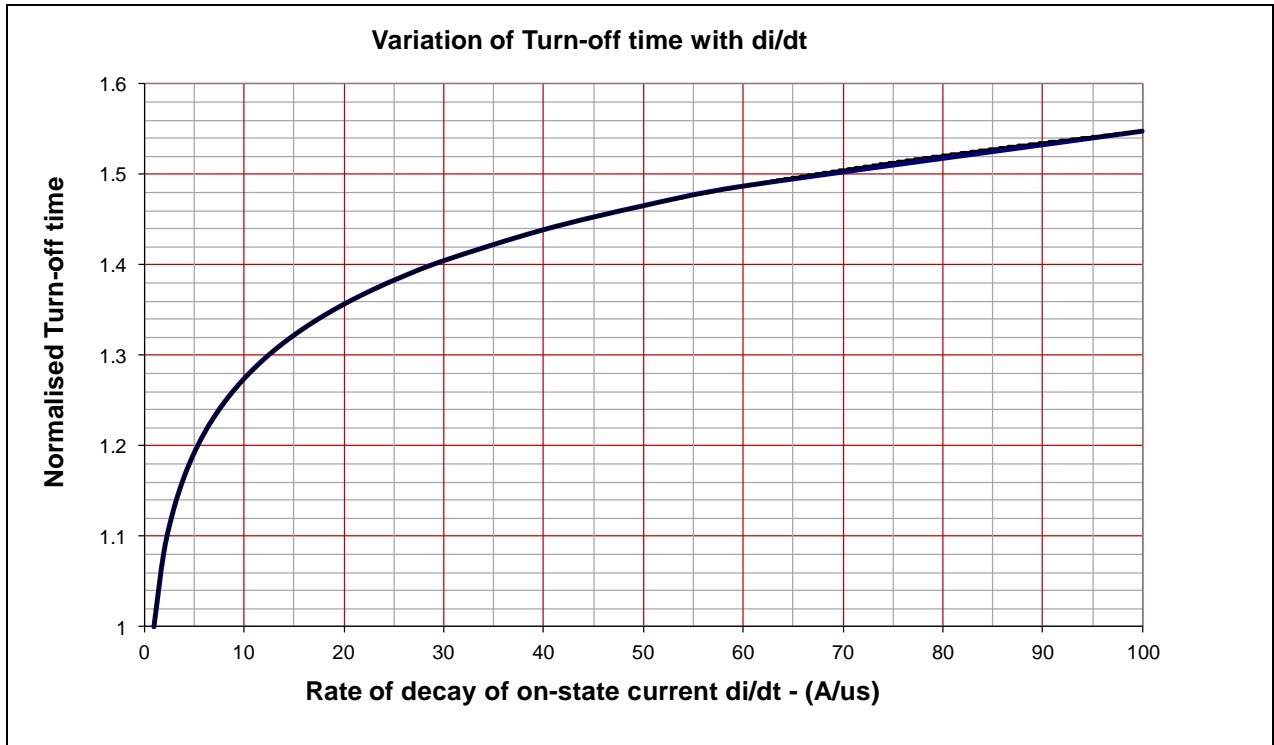
Introduction:

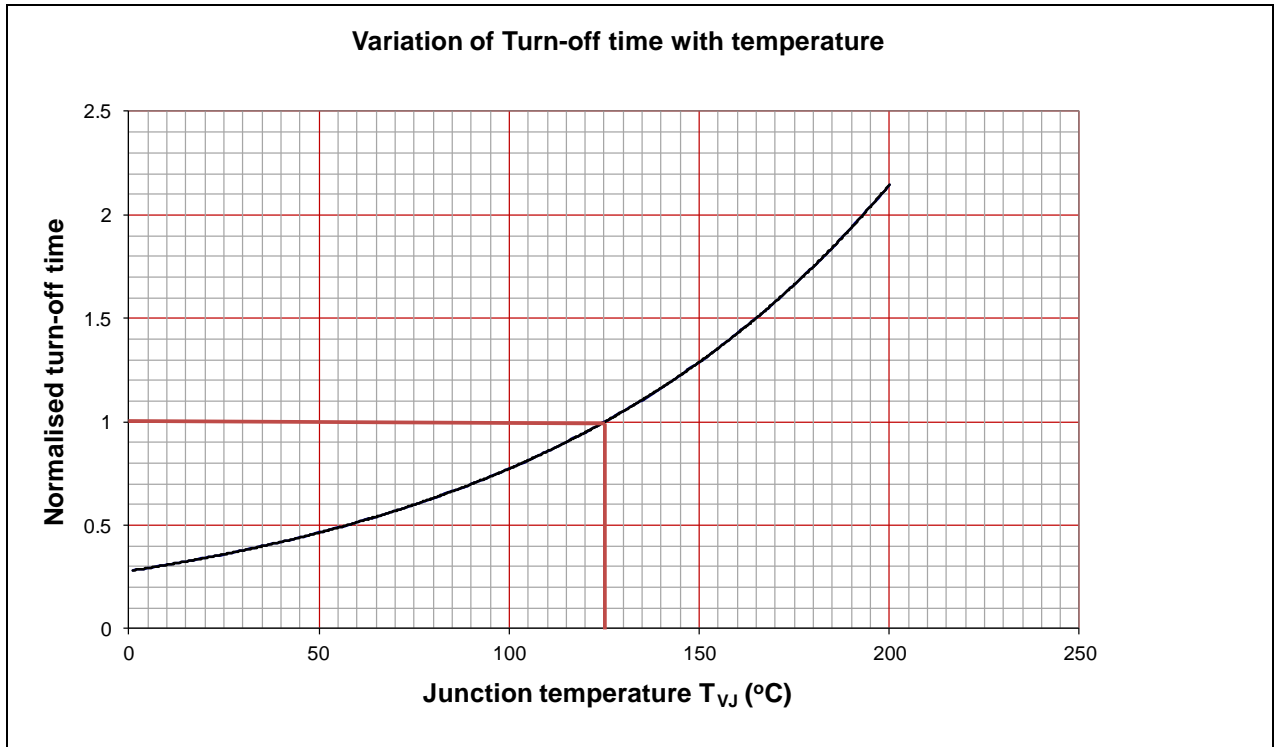
Datasheets tend to give device characteristics at a set of standard conditions. These characteristics are, however, dependent upon those conditions and if precise values are required under operating or test conditions then the factory should be consulted.

Several of these characteristics obey simple equations dependant on voltage and temperature such that values of the characteristics under different conditions can be estimated from normalised graphs such as those given below.









The graphs for the variation in turn-off time with temperature, re-applied voltage and di/dt can be combined into an EXCEL spreadsheet to estimate the turn-off time under conditions different to the datasheet conditions

A	B	C	D
Datasheet conditions			
data sheet tq	200	us	
di/dt	50	A/us	=0.0937*LN(B4)+0.7874
dv/vt	20	V/us	=0.178*LN(B5) + 0.4721
temp	125	*C	=0.2791*EXP(0.0102*B6)
Required conditions			
di/dt	5	A/us	=0.0937*LN(B10)+0.7874
dv/vt	20	V/us	=0.178*LN(B11) + 0.4721
temp	125	*C	=0.2791*EXP(0.0102*B12)
resultant tq	=B3*D10*D11*D12/(D4*D5*D6)		µs

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