
Use Infineon IGBT Library in Qspice

KS Kelvin Kelvin Leung
11-3-2023

Infineon IGBT Spice Library

- Infineon IGBT Spice Library

- https://www.infineon.com/dgdl/Infineon-SPICE-L1-IGBT_1200V_HighSpeed3-SimulationModels-v01_01-EN.zip?fileId=8ac78c8c8929aa4d01899bfabcca3417
- Unzip package, library of spice is
 - IGBT_1200V_HighSpeed3_L1.lib
- L1-model name of available model is listed in comment of library
- Model is a sub-circuit with pin order as C G and E

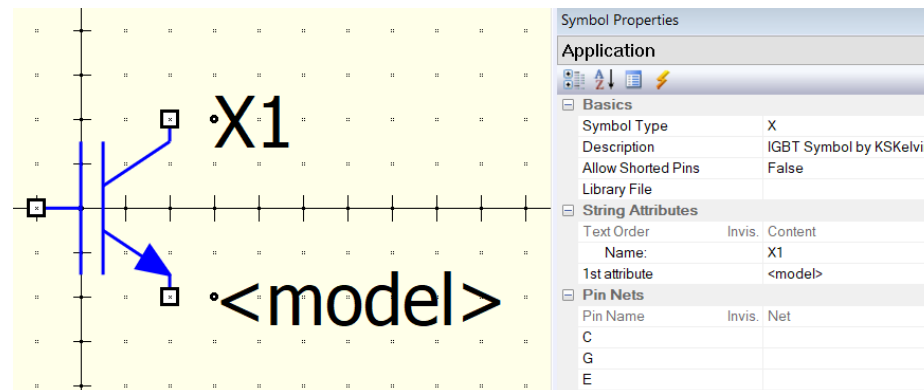
```
.SUBCKT IGW40N120H3_L1 C G E PARAMS: TJ={TEMP}  
X11TG C G E E2 Z01T2 PARAMS: TJ={TJ}  
.ENDS
```

- A custom symbol need to be created for Qspice to use this library and subckt
 - IGBT_Symbol.qsym

* PINS:

PIN	DESCRIPTION
C	IGBT collector for single devices and DuoPacks
G	IGBT gate for single devices and DuoPacks
E	IGBT emitter for single devices and DuoPacks
K	IGBT Kelvin emitter sense for single devices and DuoPacks

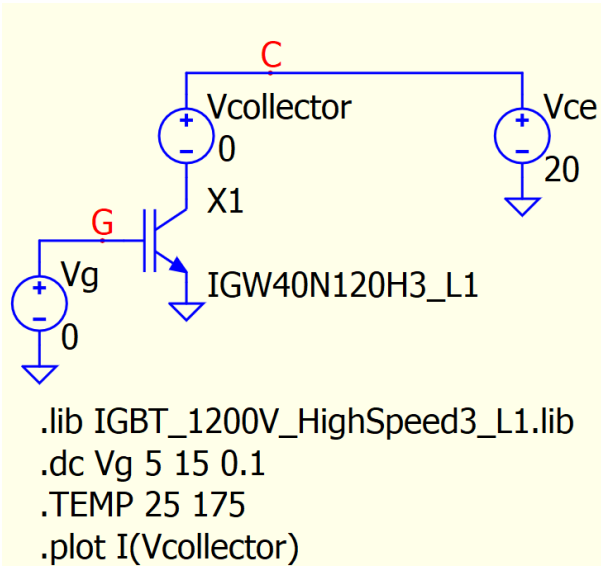
Product	Device Type	Vce/V	Ic/A	Package	L1-model name
IGW15N120H3	Single IGBT	1200	15	PG-T0247-3	IGW15N120H3_L1
IGW25N120H3	Single IGBT	1200	25	PG-T0247-3	IGW25N120H3_L1
IGW40N120H3	Single IGBT	1200	40	PG-T0247-3	IGW40N120H3_L1
IKW15N120H3	DuoPack	1200	15	PG-T0247-3	IKW15N120H3_L1
IKW25N120H3	DuoPack	1200	25	PG-T0247-3	IKW25N120H3_L1
IKW40N120H3	DuoPack	1200	40	PG-T0247-3	IKW40N120H3_L1
IKQ75N120CH3	DuoPack	1200	75	PG-T0247-3	IKQ75N120CH3_L1
IKQ50N120CH3	DuoPack	1200	50	PG-T0247-3	IKQ50N120CH3_L1
IKQ40N120CH3	DuoPack	1200	40	PG-T0247-3	IKQ40N120CH3_L1
IKY75N120CH3	DuoPack	1200	75	PG-T0247-4	IKY75N120CH3_L1
IKY50N120CH3	DuoPack	1200	50	PG-T0247-4	IKY50N120CH3_L1
IKY40N120CH3	DuoPack	1200	40	PG-T0247-4	IKY40N120CH3_L1



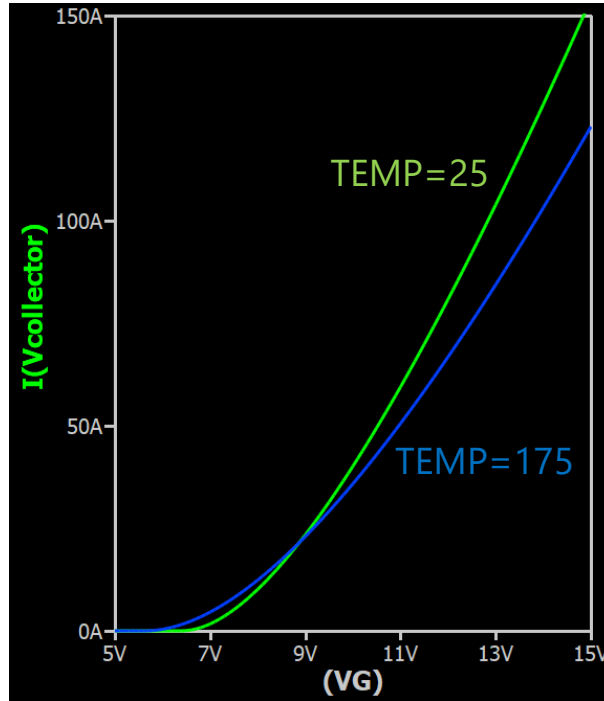
IGBT IGW40N120H3 Simulation and Datasheet Comparison

Qspice : Parent - IGBT - IC vs Vg.qsch

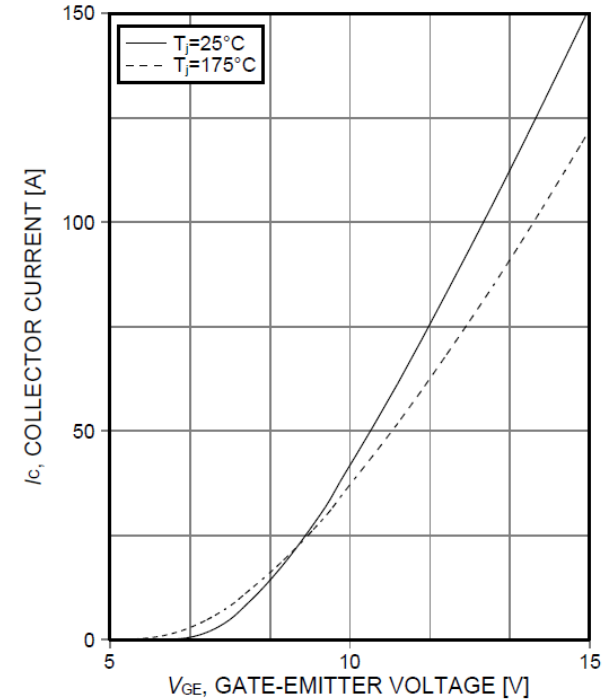
Qspice Schematic



Simulation Results



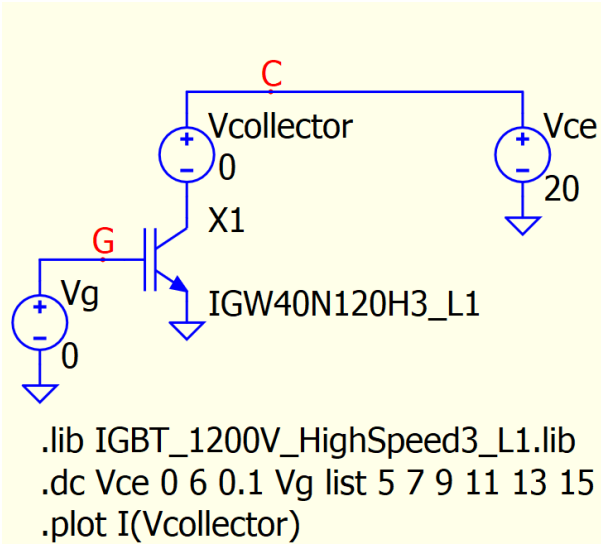
Datasheet Figure 7



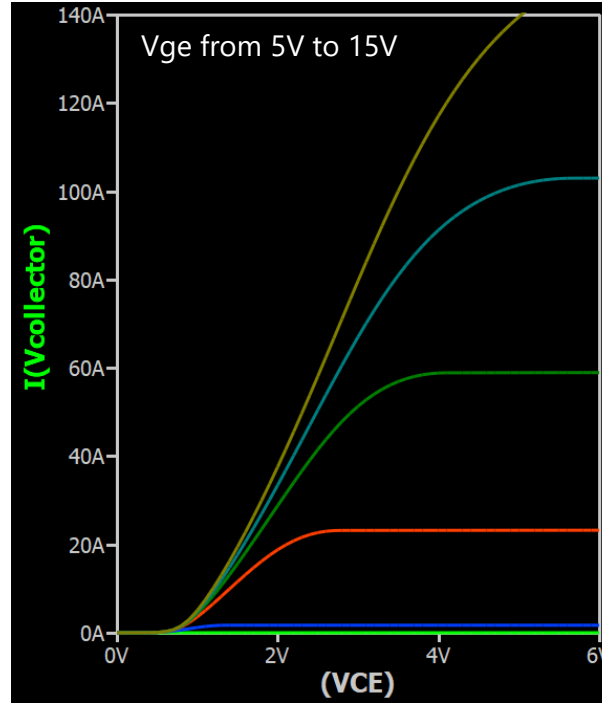
IGBT IGW40N120H3 Simulation and Datasheet Comparison

Qspice : Parent - IGBT - IC vs VCE.qsch

Qspice Schematic



Simulation Results



Datasheet Figure 7

