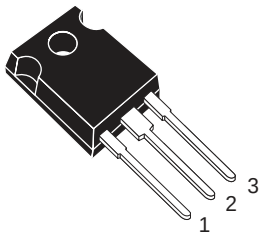
STGW30N120KD

30 A - 1200 V - short circuit rugged IGBT

Features

- Low on-losses
- High current capability
- Low gate charge
- Short circuit withstand time 10 µs
- IGBT co-packaged with ultra fast free-wheeling diode



TO-247

Application

- Motor control

Description

This IGBT utilizes the advanced PowerMESH™ process resulting in an excellent trade-off between switching performance and low on-state behavior.

Figure 1. Internal schematic diagram

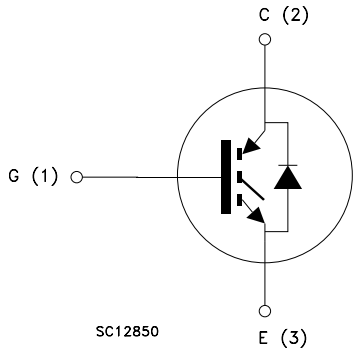


Table 1. Device summary

Order code	Marking	Package	Packaging
STGW30N120KD	GW30N120KD	TO-247	Tube

1 Electrical ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CES}	Collector-emitter voltage (V_{GE} = 0)	1200	V
I_C (1)	Collector current (continuous) at 25 °C	60	A
I_C (1)	Collector current (continuous) at 100 °C	30	A
I_{CL} (2)	Turn-off latching current	100	A
I_{CP} (3)	Pulsed collector current	100	A
V_{GE}	Gate-emitter voltage	±25	V
t_{scw}	Short circuit withstand time, V_{CE} = 0.5 $V_{(BR)CES}$ T_j = 125 °C, R_G = 10 Ω, V_{GE} = 12 V	10	µs
P_{TOT}	Total dissipation at T_C = 25 °C	175	W
I_F	Diode RMS forward current at T_C = 25 °C	30	A
I_{FSM}	Surge non repetitive forward current t_p = 10 ms sinusoidal	100	A
T_j	Operating junction temperature	– 55 to 125	°C

1. Calculated according to the iterative formula:

$$I_C(T_C) = \frac{T_{JMAX} - T_C}{R_{THJ-C} \times V_{CESAT(MAX)}(T_C, I_C)}$$

2. Vclamp = 80% of V_{CES}, T_j =150 °C, R_G=10 Ω, V_{GE}=15 V
3. Pulse width limited by max. junction temperature allowed

Table 3. Thermal resistance

Symbol	Parameter	Value	Unit
$R_{thj\text{-}case}$	Thermal resistance junction-case IGBT max.	0.57	°C/W
$R_{thj\text{-}case}$	Thermal resistance junction-case diode max.	1.6	°C/W
$R_{thj\text{-}amb}$	Thermal resistance junction-ambient IGBT max.	50	°C/W