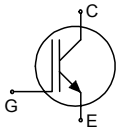
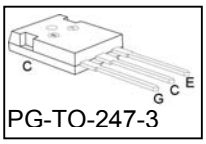
Low Loss IGBT in TrenchStop® and Fieldstop technology



- Approx. 1.0V reduced $V_{CE(sat)}$ compared to BUP313
- Short circuit withstand time – 10µs
- Designed for :
  - Frequency Converters
  - Uninterrupted Power Supply
- TrenchStop® and Fieldstop technology for 1200 V applications offers :
  - very tight parameter distribution
  - high ruggedness, temperature stable behavior
- NPT technology offers easy parallel switching capability due to positive temperature coefficient in $V_{CE(sat)}$
- Low EMI
- Low Gate Charge
- Qualified according to JEDEC[1] for target applications
- Pb-free lead plating; RoHS compliant
- Complete product spectrum and PSpice Models : http://www.infineon.com/igbt/



PG-TO-247-3

Type	V_{CE}	I_C	$V_{CE(sat),Tj=25°C}$	$T_{j,max}$	Marking Code	Package
IGW15T120	1200V	15A	1.7V	150°C	G15T120	PG-TO-247-3

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CE}	1200	V
DC collector current T_C = 25°C T_C = 100°C	I_C	 30 15	A
Pulsed collector current, t_p limited by T_{jmax}	I_{Cpuls}	45	
Turn off safe operating area $V_{CE} \le$ 1200V, $T_j \le$ 150°C	-	45	
Gate-emitter voltage	V_{GE}	±20	V
Short circuit withstand time[2)] V_{GE} = 15V, $V_{CC} \le$ 1200V, $T_j \le$ 150°C	t_{SC}	10	µs
Power dissipation T_C = 25°C	P_{tot}	110	W
Operating junction temperature	T_j	-40...+150	°C
Storage temperature	T_{stg}	-55...+150	
Soldering temperature, 1.6mm (0.063 in.) from case for 10s	-	260	

[1] J-STD-020 and JESD-022
[2)] Allowed number of short circuits: <1000; time between short circuits: >1s.

Thermal Resistance

Parameter	Symbol	Conditions	Max. Value	Unit
Characteristic				
IGBT thermal resistance, junction – case	R_{thJC}		1.1	K/W
Thermal resistance, junction – ambient	R_{thJA}		40	

Electrical Characteristic, at T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Static Characteristic						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	V_{GE}=0V, I_C=0.5mA	1200	-	-	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE} = 15V, I_C=15A				
		T_j=25°C	-	1.7	2.2	
		T_j=125°C	-	2.0	-	
		T_j=150°C	-	2.2	-	
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=0.6mA, V_{CE}=V_{GE}	5.0	5.8	6.5	
Zero gate voltage collector current	I_{CES}	V_{CE}=1200V, V_{GE}=0V				mA
		T_j=25°C	-	-	0.2	
		T_j=150°C	-	-	2.0	
Gate-emitter leakage current	I_{GES}	V_{CE}=0V, V_{GE}=20V	-	-	100	nA
Transconductance	g_{fs}	V_{CE}=20V, I_C=15A	-	10	-	S
Integrated gate resistor	R_{Gint}		none			Ω
Dynamic Characteristic						
Input capacitance	C_{iss}	V_{CE}=25V,	-	1100	-	pF
Output capacitance	C_{oss}	V_{GE}=0V,	-	100	-	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	50	-	
Gate charge	Q_{Gate}	V_{CC}=960V, I_C=15A V_{GE}=15V	-	85	-	nC
Internal emitter inductance measured 5mm (0.197 in.) from case	L_E		-	13	-	nH
Short circuit collector current[1)]	$I_{C(SC)}$	V_{GE}=15V, t_{SC}≤10µs V_{CC} = 600V, T_j = 25°C	-	90	-	A

[1)] Allowed number of short circuits: <1000; time between short circuits: >1s.