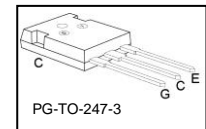
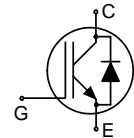


Low Loss DuoPack : IGBT in 2nd generation **TrenchStop®**
with soft, fast recovery anti-parallel Emitter Controlled Diode

- Short circuit withstand time – 10µs
- Designed for :
 - Frequency Converters
 - Uninterrupted Power Supply
- **TrenchStop®** 2nd generation for 1200 V applications offers :
 - very tight parameter distribution
 - high ruggedness, temperature stable behavior
- Easy paralleling capability due to positive temperature coefficient in $V_{CE(sat)}$
- Low EMI
- Low Gate Charge
- Very soft, fast recovery anti-parallel Emitter Controlled HE Diode
- Qualified according to JEDEC¹ for target applications
- Pb-free lead plating; RoHS compliant



Complete product spectrum and PSpice Models : <http://www.infineon.com/igbt/>

Type	V_{CE}	I_C	$V_{CE(sat), T_j=25^\circ C}$	$T_{j,max}$	Marking Code	Package
IKW25N120T2	1200V	25A	1.7V	175°C	K25T1202	PG-TO-247-3

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CE}	1200	V
DC collector current ($T_F=150^\circ C$)	I_C		A
$T_C = 25^\circ C$		50	
$T_C = 110^\circ C$		25	
Pulsed collector current, t_p limited by $T_{j,max}$	$I_{C,puls}$	100	
Turn off safe operating area	-	100	
$V_{CE} \leq 1200V, T_j \leq 175^\circ C$			
Diode forward current ($T_F=150^\circ C$)	I_F		
$T_C = 25^\circ C$		40	
$T_C = 110^\circ C$		25	
Diode pulsed current, t_p limited by $T_{j,max}$	$I_{F,puls}$	100	
Gate-emitter voltage	V_{GE}	± 20	V
Short circuit withstand time ²⁾	t_{SC}	10	µs
$V_{GE} = 15V, V_{CC} \leq 600V, T_{j,start} \leq 175^\circ C$			
Power dissipation	P_{tot}	349	W
$T_C = 25^\circ C$			
Operating junction temperature	T_j	-40...+175	°C
Storage temperature	T_{stg}	-55...+150	
Soldering temperature, 1.6mm (0.063 in.) from case for 10s Wavesoldering only, temperature on leads only	-	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}		0.43	K/W
Diode thermal resistance, junction – case	R_{thJCD}		0.81	
Thermal resistance, junction – ambient	R_{thJA}		40	

Electrical Characteristic, at $T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Static Characteristic						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_C=500\mu A$	1200	-	-	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE} = 15V, I_C=25A$ $T_j=25\text{ °C}$ $T_j=150\text{ °C}$ $T_j=175\text{ °C}$	-	1.7	2.2	
			-	2.1	-	
			-	2.2	-	
Diode forward voltage	V_F	$V_{GE}=0V, I_F=25A$ $T_j=25\text{ °C}$ $T_j=150\text{ °C}$ $T_j=175\text{ °C}$	-	1.65	2.2	
			-	1.7	-	
			-	1.65	-	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=1.0mA, V_{CE}=V_{GE}$	5.2	5.8	6.4	
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V$ $T_j=25\text{ °C}$ $T_j=150\text{ °C}$ $T_j=175\text{ °C}$	-	-	0.4	mA
			-	-	4.0	
			-	-	20	
Gate-emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V$	-	-	200	nA
Transconductance	g_{fs}	$V_{CE}=20V, I_C=25A$	-	13.5	-	S