



1200V,25A,Trench field-stop , IGBT

TO-247-3L (*Prefix :W)

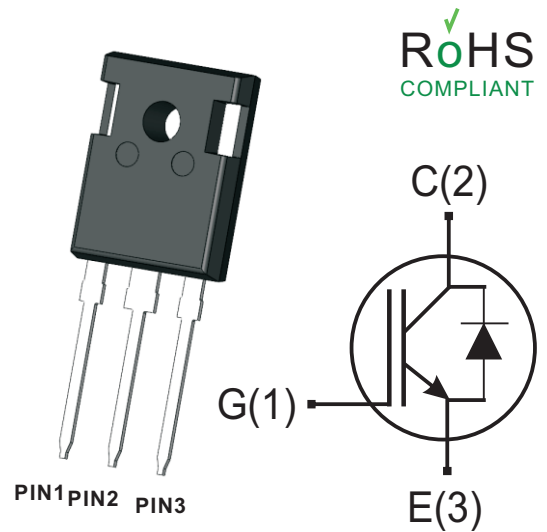
V _{CES}	1200V
I _c (T _c 100°C)	25A
V _{CE(sat)} (typ)	1.7V

DESCRIPTION

- Positive temperature coefficient
- Low V_{CEsat}
- Low saturation voltage
- High switching frequency
- Easy paralleling
- Rohs Compliant

APPLICATIONS

- Motor drives
- Inverters
- Uninterruptible Power Supplies
- Converters



ROHS
COMPLIANT

SYMBOL

ABSOLUTE MAXIMUM RATINGS (TA=25°C, unless otherwise specified)

PARAMETER	Symbols	RATINGS	Units
Collector-emitter voltage	V _{CES}	1200	V
Gate-emitter voltage	V _{GES}	±20	V
Continuous Drain Current	I _c	T _c =25°C	50
		T _c =100°C	25
Pulsed Drain Current	I _{CM}	100	A
Diode Forward Current	I _F	25	A
Power Dissipation (T _c = 25°C)	P _D	312	W
Operating junction temperature	T _j	-55 ~ +150	°C
storage temperature	T _{stg}	-55 ~ +150	°C

Thermal Resistance

PARAMETER	Symbols	RATINGS	Units
Thermal resistance IGBT junction – case.	R _{thJC}	0.4	°C/W
Thermal resistance Diode junction – case.	R _{thJC}	0.5	°C/W
Thermal resistance, junction – ambient	R _{thJA}	40	°C/W



Electrical Characteristics of the IGBT (Tj= 25°C unless otherwise specified)

PARAMETER	Symbols	TEST CONDITIONS	Min	Typ	Max	Units
Static						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_{CE}=0.25mA$	1200			V
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V$			100	μA
Gate-emitter leakage current	I_{GES}	$V_{GE}=\pm 20V, V_{CE}=0V$			± 100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=25A$		1.7	2.0	V
Gate-emitter threshold voltage	$V_{GE(TH)}$	$V_{GE}=V_{CE}, I_C=1mA$	5.8	6.1	6.3	V
Dynamic						
Input Capacitance	C_{ies}	$V_{CE}=30V,$		2080		μF
Output Capacitance	C_{oes}	$V_{GE}=0V,$		105		μF
Reverse Transfer Capacitance	C_{res}	$f=1.0MHz$		20		μF
Gate resistance	R_G	$V_{DS}=0V, F_{REQ}=1.00MHz$		2.0		Ω

Electrical Characteristics of the Diode (Tj= 25°C unless otherwise specified)

PARAMETER	Symbols	TEST CONDITIONS	Min	Typ	Max	Units
Static						
Diode Forward Voltage	V_F	$V_{GE}=0V, I_F=25A$		1.9	2.3	V
Dynamic						
Diode reverse recovery time	TRR	$I_F=0.5A, I_R=1.0A$ $I_{rr}=0.25A$			75	ns

Switching Characteristic, Inductive Load

PARAMETER	Symbols	TEST CONDITIONS	Min	Typ	Max	Units
Dynamic						
Turn-on Delay Time	$t_{d(on)}$	$V_{CC}=600V, I_C=25A,$		31		ns
Rise Time	t_r	$V_{GE}=15V, R_g=10\Omega$		62		ns
Turn-on Energy	E_{on}	$T_j=25^\circ C$		2.0		mJ
Turn-off Delay Time	$t_{d(off)}$			184		ns
Fall Time	t_f			59		ns
Turn-off Energy	E_{off}			0.9		mJ



Typical Characteristics

Fig.1 Typical output characteristic

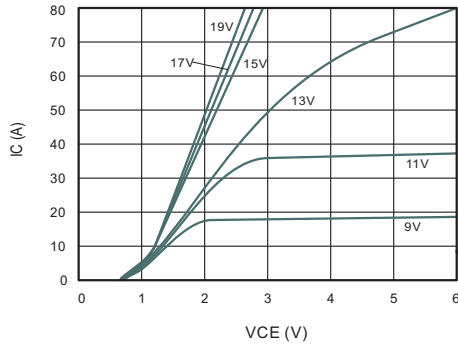


Fig.2 Capacitance Characteristics

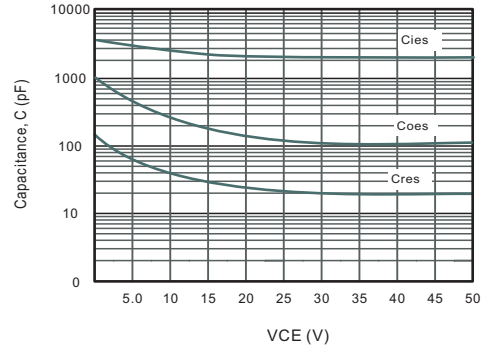


Fig.3 Power Dissipation

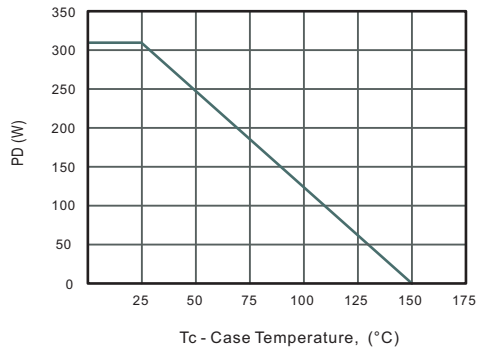


Fig.4 Collector Current Derating

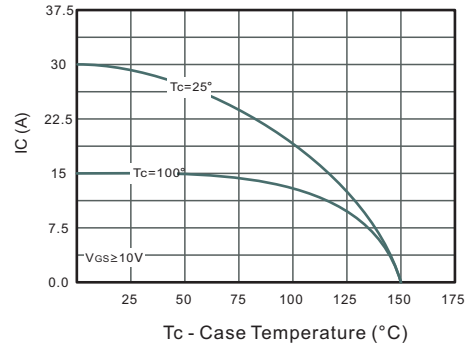


Fig.5 Typical $V_{GE(th)}$ as a function of T_J

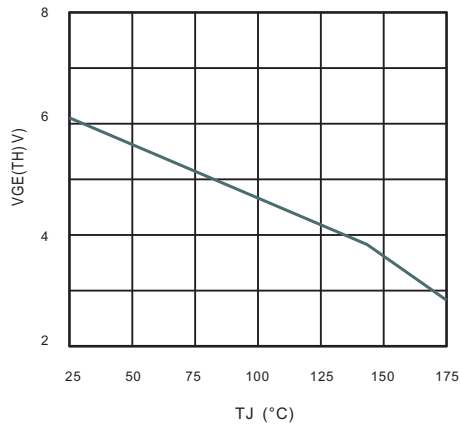


Fig.6 Drain-Source On-Resistance vs. Drain Current

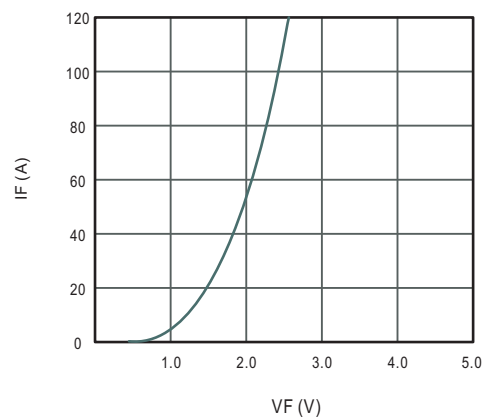




Fig.7 Safe Operating Area

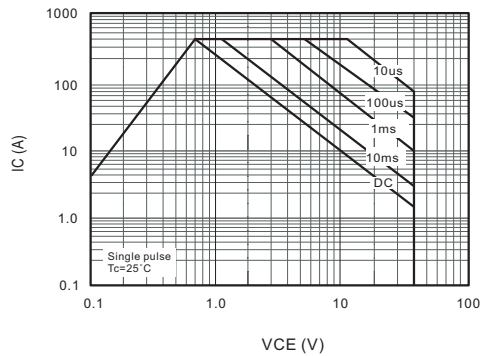


Fig.8 Max. Transient Thermal Impedance-IGBT

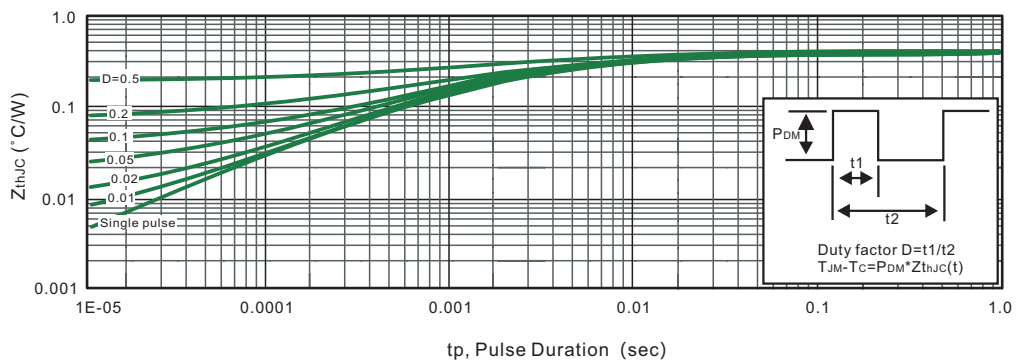
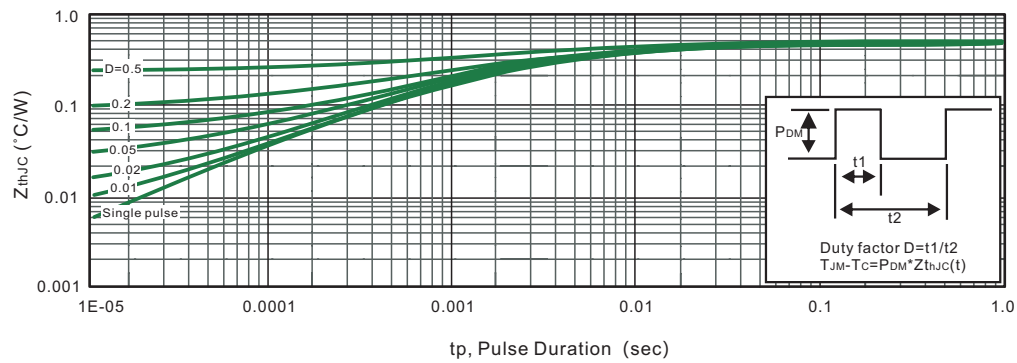


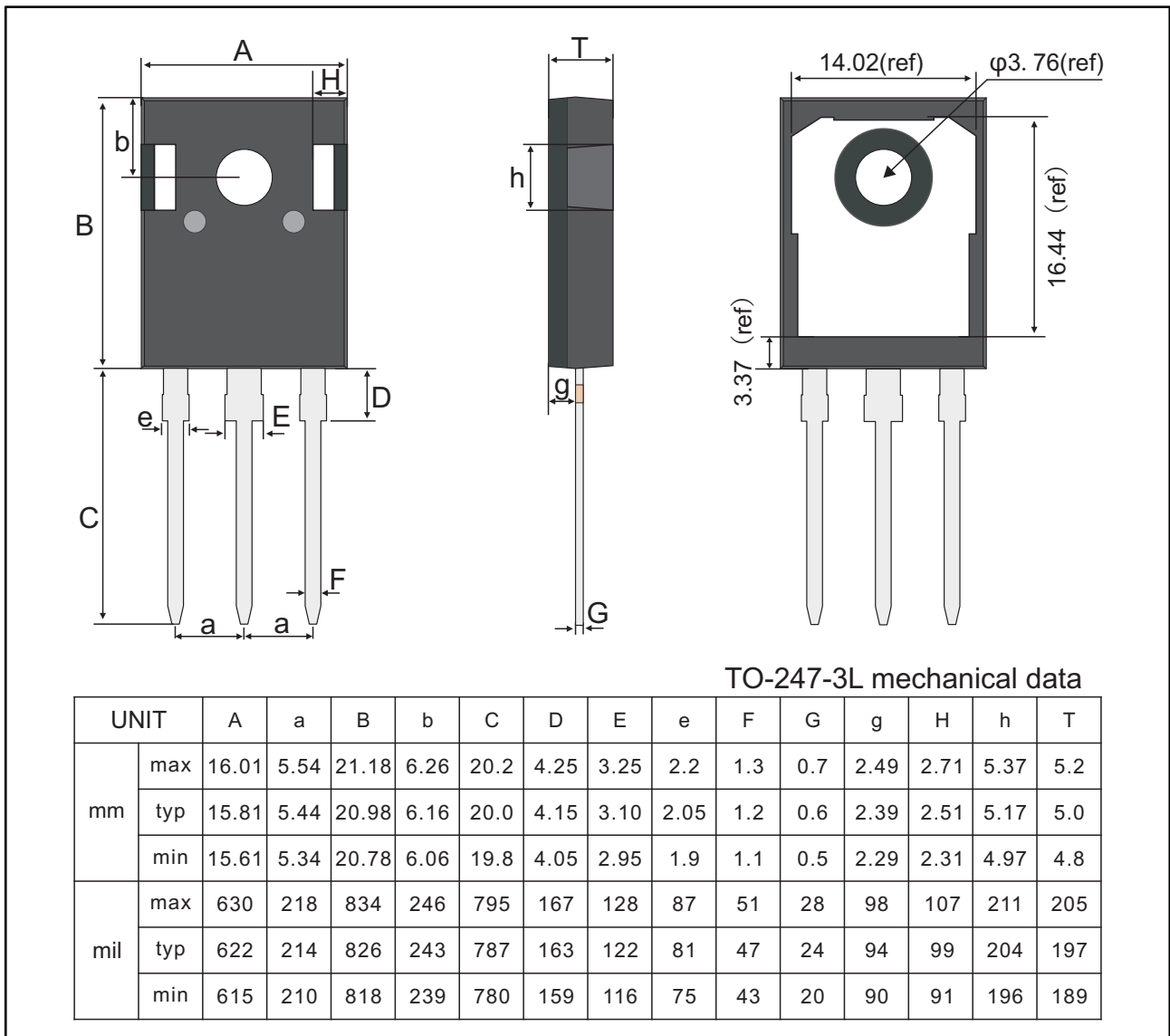
Fig.9 Max. Transient Thermal Impedance-Diode





Package Outline
Through Hole Package ; 3 leads

TO-247-3L



Marking

Type number	Marking code
GW25NPD120SN	GW25NPD120SN



Important Notice and Disclaimer

Jingdao Microelectronics reserves the right to make changes to this document and its products and specifications at any without notice.

Customers should obtain and confirm the latest product information and specifications before final, purchase or use.

Jingdao Microelectronics makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does Jingdao Microelectronics assume any liability for application assistance or customer product design.

Jingdao Microelectronics does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Jingdao Microelectronics.

Jingdao Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of Jingdao Microelectronics.