NXH160T120L2Q2F2S1G

Split T-Type NPC Power Module

1200 V, 160 A IGBT, 650 V, 100 A IGBT

May, 2019 Rev. 0
Publication Order Number:
NXH160T120L2Q2F2S1/D

Table 1. ABSOLUTE MAXIMUM RATINGS (Note 1) T_J = 25°C unless otherwise noted

Rating	Symbol	Value	Unit
HALF BRIDGE IGBT			
Collector−Emitter Voltage	V_{CES}	1200	V
Gate−Emitter Voltage	V_{GE}	±20	V
Continuous Collector Current @ T_h = 80°C (T_J = 175°C)	I_C	181	A
Pulsed Collector Current (T_J = 175°C)	I_{Cpulse}	543	A
Maximum Power Dissipation @ T_h = 80°C (T_J = 175°C)	P_{tot}		

Table 1. ABSOLUTE MAXIMUM RATINGS (Note 1) T_J = 25°C unless otherwise noted

Rating	Symbol	Value	Unit
NEUTRAL POINT INVERSE DIODE			
Maximum Operating Junction Temperature	T_{JMAX}	150	°C
THERMAL PROPERTIES			
Storage Temperature range	T_{stg}	−40 to 125	°C
INSULATION PROPERTIES			
Isolation test voltage, t = 1 sec, 60Hz	V_{is}	3000	V_{RMS}
Creepage distance		12.7	mm

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Refer to ELECTRICAL CHARACTERISTICS, RECOMMENDED OPERATING RANGES and/or APPLICATION INFORMATION for Safe Operating parameters.

Table 2. RECOMMENDED OPERATING RANGES

Rating	Symbol	Min	Max	Unit
Module Operating Junction Temperature	T_J	−40	(T_{jmax} −25)	°C

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

Table 3. ELECTRICAL CHARACTERISTICS T_J = 25°C unless otherwise noted

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
HALF BRIDGE IGBT CHARACTERISTICS						
Collector−Emitter Cutoff Current	V_{GE} = 0 V, V_{CE} = 1200 V	I_{CES}	–	–	500	μ Ope307 Eff516

Table 3. ELECTRICAL CHARACTERISTICS T_J = 25°C unless otherwise noted

Parameter	Symbol	Min	Typ	Max	Unit

Table 3. ELECTRICAL CHARACTERISTICS T_J = 25°C unless otherwise noted

Parameter	Max	Unit

TYPICAL CHARACTERISTICS Half Bridge IGBT and Neutral Point Diode

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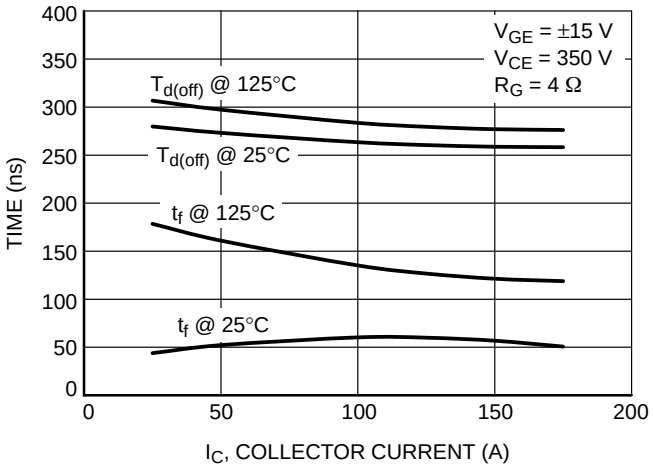


Figure 7. Typical Turn Off Time vs. IC

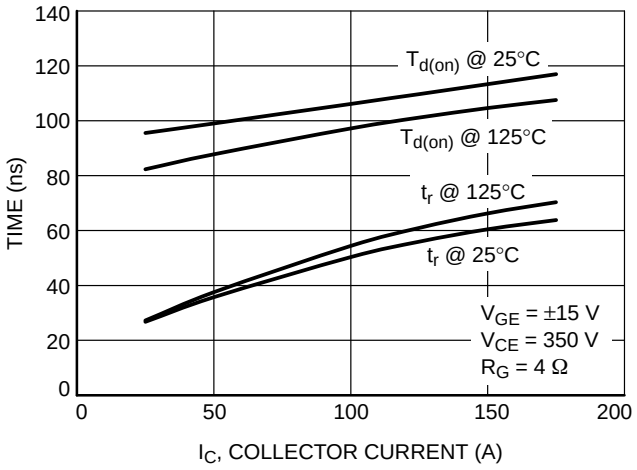


Figure 8. Typical Turn On Time vs. IC

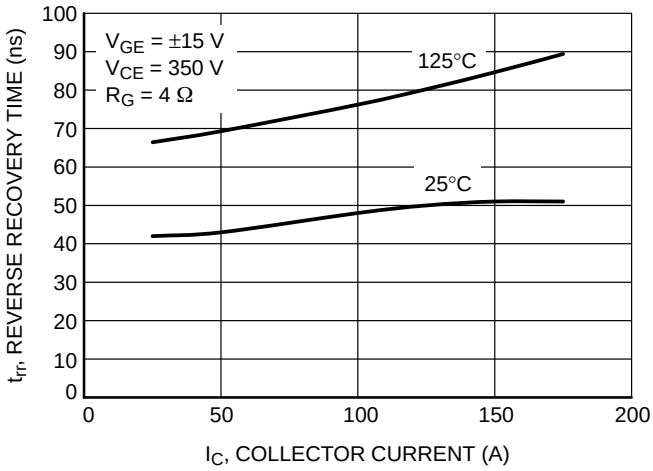


Figure 9. Typical Reverse Recovery Time vs. IC

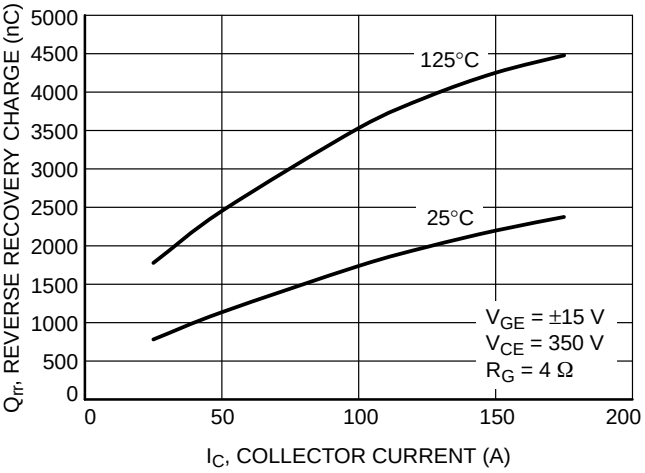


Figure 10. Typical Reverse Recovery Charge vs. IC

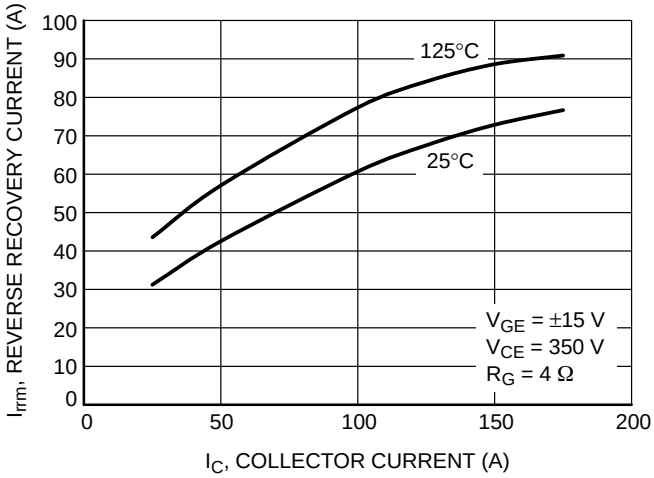


Figure 11. Typical Reverse Recovery Peak Current vs. IC

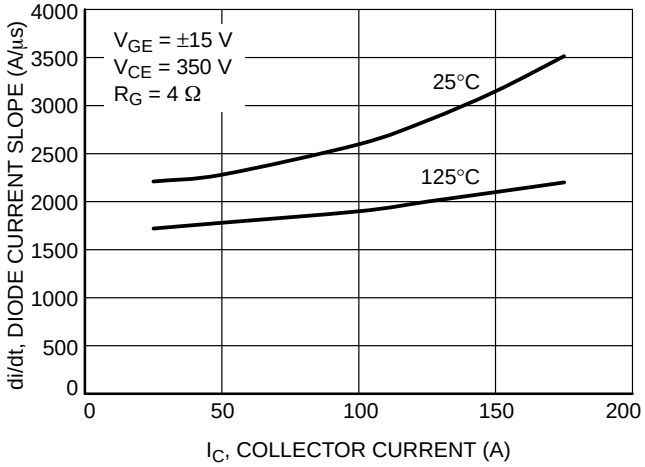


Figure 12. Typical Diode Current Slope vs. IC

TYPICAL CHARACTERISTICS Neutral Point IGBT and Half Bridge Diode

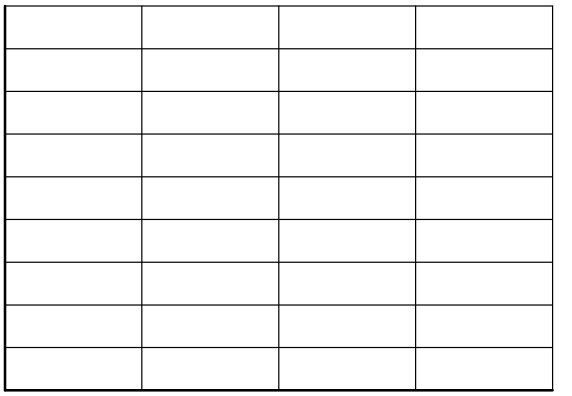


Figure 23. Typical Turn Off Time vs. IC

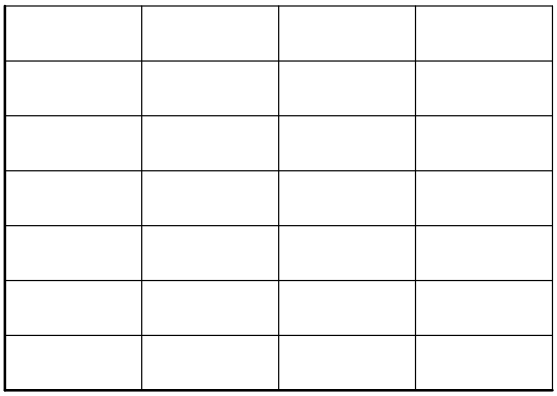
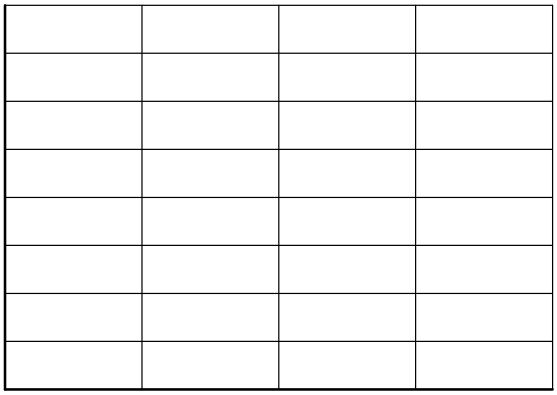
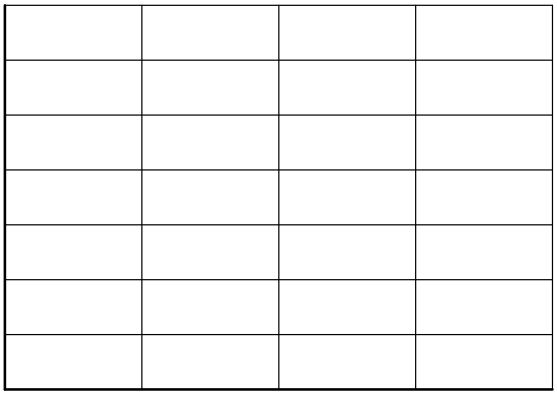
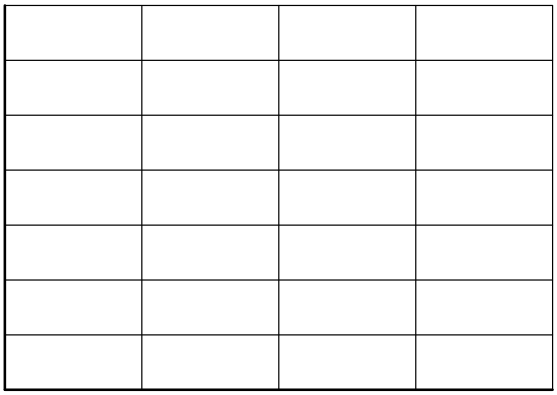
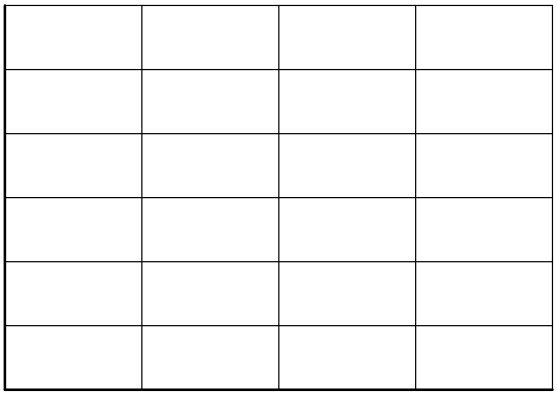


Figure 24. Typical Turn On Time vs. IC

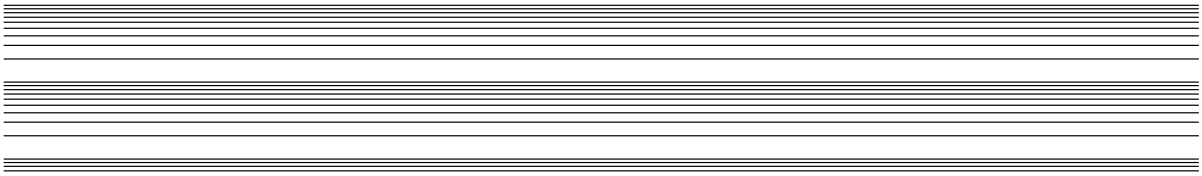








TYPICAL CHARACTERISTICS Half Bridge IGBT Protection Diode



TYPICAL CHARACTERISTICS Neutral Point IGBT Protection Diode

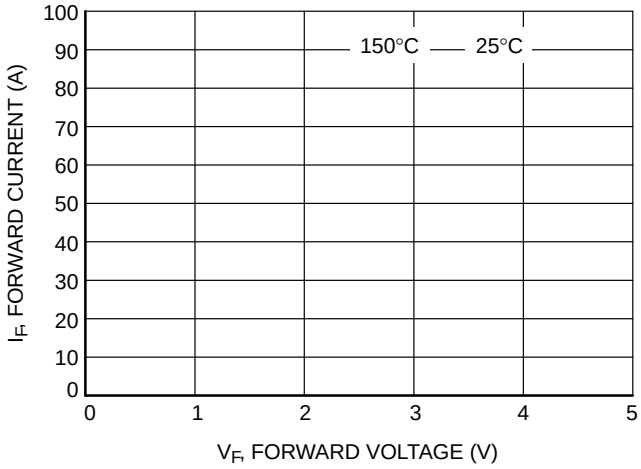
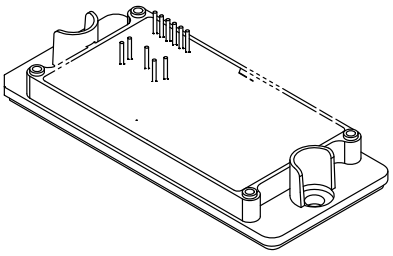


Figure 35. Diode Forward Characteristic



PIM56, 93x47 (SOLDER PIN)