

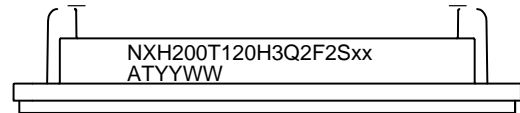
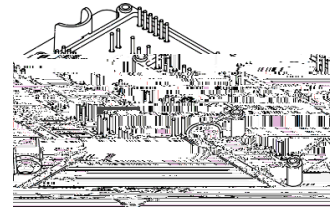
Si/SiC Hybrid Module – EliteSiC, Split T-Type NPC Inverter, Q2 Package

NXH200T120H3Q2F2SG, NXH200T120H3Q2F2STG

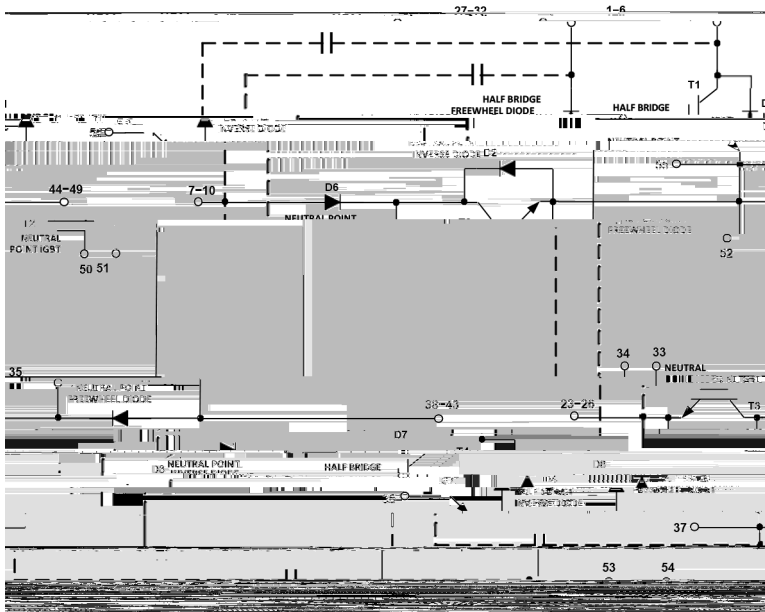
The NXH200T120H3Q2F2SG is a power module containing a split T-type neutral point clamped three-level inverter. The integrated field stop trench IGBTs and SiC Diodes provide lower conduction losses and switching losses, enabling designers to achieve high efficiency and superior reliability. NXH200T120H3Q2F2STG is Pre-applied Thermal Interface Material (TIM) module.

- Split T-type Neutral Point Clamped Three-level Inverter Module
- 1200 V Ultra Field Stop IGBTs & 650 V FS4 IGBTs
- 650 V SiC Diodes
- Low Inductive Layout
- Solderable Pins
- Thermistor
- Pre-applied Thermal Interface Material (TIM)

- Solar Inverters
- Uninterruptible Power Supplies



NXH200T120H3Q2F2SG,
NXH200T120H3Q2F2STG = Device Code
YYWW = Year and Work Week Code
A = Assembly Site Code
T = Test Side Code
G = Pb-Free Package



See detailed ordering and shipping information on page 6 of this data sheet.

(Note 1) $T_J = 25^\circ$



(Note 1) $T_J = 25^{\circ}\text{C}$ unless otherwise noted

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T_J = 25°C unless otherwise noted

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Turn-on Delay Time	T _J = 125°C V _{CE} = 350 V, I _C = 170 A V _{GE} = -5/+15 V, R _G = 10 Ω	td(on)	-	276	-	ns
Rise Time		t _r	-	97	-	
Turn-off Delay Time		td(off)	-	997	-	
Fall Time		t _f	-	99	-	
Turn-on Switching Loss per Pulse		E _{on}	-	5.4	-	mJ
Turn-off Switching Loss per Pulse		E _{off}	-	7.9	-	
Input Capacitance	V _{CE} = 25 V, V _{GE} = 0 V f = 100 kHz	C _{ies}	-	35615	-	pF
Output Capacitance		C _{oes}	-	700	-	
Reverse Transfer Capacitance		C _{res}	-	530	-	
Total Gate Charge	V _{CE} = 600 V, I _C = 200 A, V _{GE} = 15 V	Q _g	-	1706.4	-	nC
Thermal Resistance – chip-to-heatsink	Thermal grease, Thickness < 100 μm, λ = 2.87 W/mK	R _{thJH}	-	0.24	-	°C/W
Thermal Resistance – chip-to-case		R _{thJC}	-	0.13	-	°C/W

Diode Reverse Leakage Current	V _R = 650 V	I _R	-	-	100	μA
Diode Forward Voltage	I _F = 100 A, T _J = 25°C	V _F	1.2	1.48	2.7	V
	I _F = 100 A, T _J = 175°C		-	1.90	-	
Reverse Recovery Time	T _J = 25°C V _{CE} = 350 V, I _C = 170 A V _{GE} = -5/+15 V, R _G = 10 Ω	t _{rr}	-	26.6	-	ns
Reverse Recovery Charge		Q _{rr}	-	308	-	nC
Peak Reverse Recovery Current		I _{RRM}	-	16.8	-	A
Peak Rate of Fall of Recovery Current		di/dt	-	1659	-	A/μs
Reverse Recovery Energy		Err	-	34.5	-	μJ
Reverse Recovery Time		T _J = 125°C V _{CE} = 350 V, I _C = 170 A V _{GE} = -5/+15V, R _G = 10 Ω	t _{rr}	-	25.8	-
Reverse Recovery Charge	Q _{rr}		-	294	-	nC
Peak Reverse Recovery Current	I _{RRM}		-	18.0	-	A
Peak Rate of Fall of Recovery Current	di/dt		-	1672	-	A/μs
Reverse Recovery Energy	Err		-	35.2	-	μJ
Thermal Resistance – chip-to-heatsink	Thermal grease, Thickness < 100 μm, λ = 2.87 W/mK		R _{thJH}	-	0.54	-
Thermal Resistance – chip-to-case		R _{thJC}	-	0.43	-	°C/W

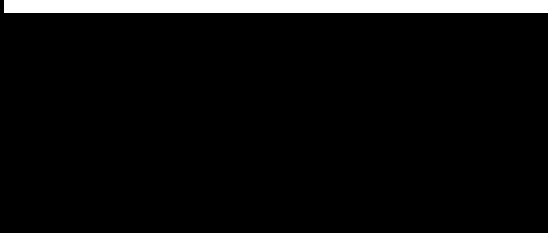
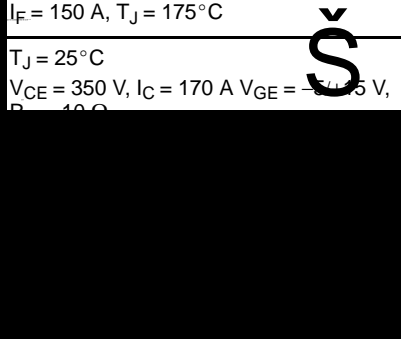
Collector-Emitter Cutoff Current	V _{GE} = 0 V, V _{CE} = 650 V	I _{CES}	-	-	300	μA
Collector-Emitter Saturation Voltage	V _{GE} = 15 V, I _C = 150 A, T _J = 25°C	V _{CE(sat)}	0.8	1.36	2.05	V
	V _{GE} = 15 V, I _C = 150 A, T _J = 175°C					

T_J = 25°C unless otherwise noted

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Turn-on Delay Time	T _J = 25°C V _{CE} = 350 V, I _C = 170 A V _{GE} = -5/+15 V, R _G = 10 Ω	td(on)	-	94	-	ns
Rise Time		t _r	-	45	-	
Turn-off Delay Time		td(off)	-	224	-	
Fall Time		t _f	-	22	-	
Turn-on Switching Loss per Pulse		E _{on}	-	3.1	-	mJ
Turn off Switching Loss per Pulse		E _{off}	-	2.4	-	
Turn-on Delay Time	T _J = 125°C V _{CE} = 350 V, I _C = 170 A V _{GE} = -5/+15 V, R _G = 10 Ω	td(on)	-	92	-	ns
Rise Time		t _r	-	51	-	
Turn-off Delay Time		td(off)	-	244	-	
Fall Time		t _f	-	19	-	
Turn-on Switching Loss per Pulse		E _{on}	-	4.7	-	mJ
Turn off Switching Loss per Pulse		E _{off}	-	3.0	-	
Input Capacitance	V _{CE} = 25 V, V _{GE} = 0 V, f = 100 kHz	C _{ies}	-	9316	-	pF
Output Capacitance		C _{oes}	-	249	-	
Reverse Transfer Capacitance		C _{res}	-	34	-	
Total Gate Charge	V _{CE} = 480 V, I _C = 80 A, V _{GE} = 15 V	Q _g	-	300.9	-	nC
Thermal Resistance – chip-to-heatsink	Thermal grease, Thickness < 100 μm, λ = 2.87 W/mK	R _{thJH}	-	0.50	-	°C/W
Thermal Resistance – chip-to-case		R _{thJC}	-	0.36	-	°C/W

Diode Reverse Leakage Current	V _R = 1200 V	I _R	-	-	100	μA
	I _F = 150 A, T _J = 25°C	V _F	1.6	2.71	3.6	V
	I _F = 150 A, T _J = 175°C		-	2.00	-	



$T_J = 25^\circ\text{C}$ unless otherwise noted

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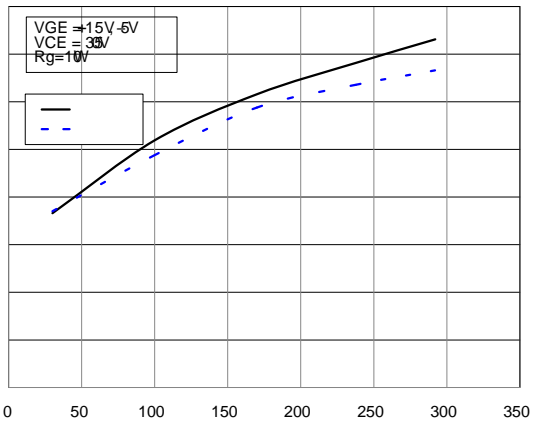
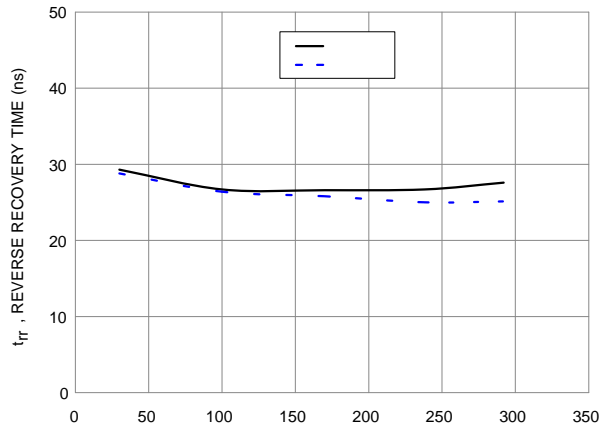
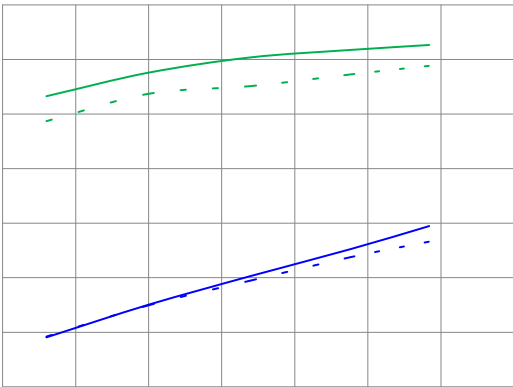
Diode Forward Voltage	$I_F = 7\text{ A}, T_J = 25^\circ\text{C}$	V_F	1.05	1.93	2.80	V
	$I_F = 7\text{ A}, T_J = 175^\circ\text{C}$		–	1.29	–	
Thermal Resistance – chip-to-heatsink	Thermal grease, Thickness < 100 μm , $\lambda = 2.87\text{ W/mK}$	R_{thJH}	–	1.71	–	$^\circ\text{C/W}$



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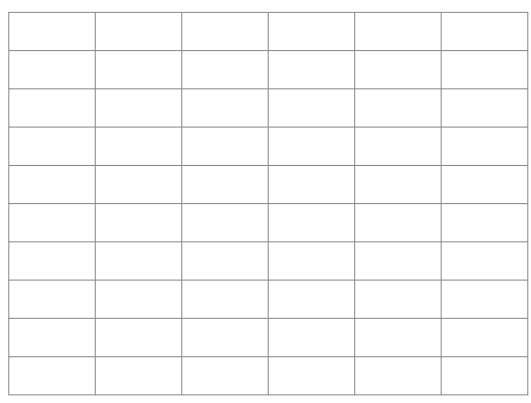
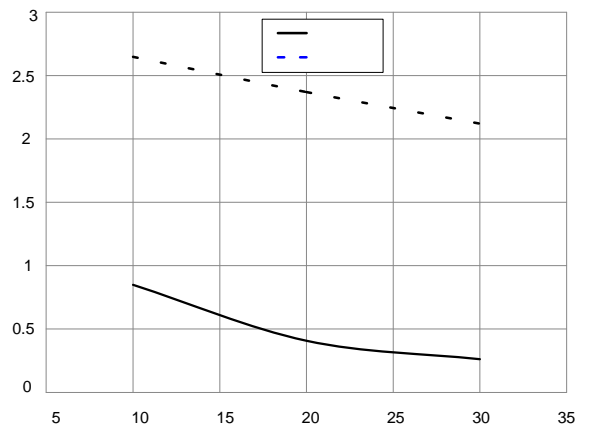
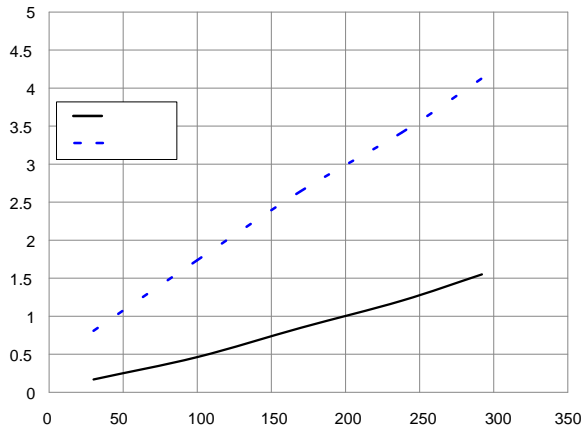
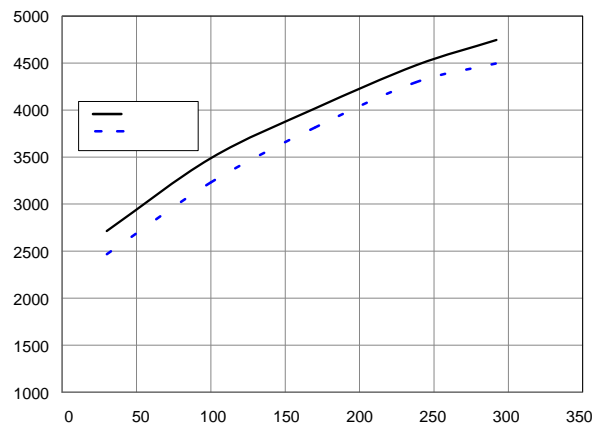
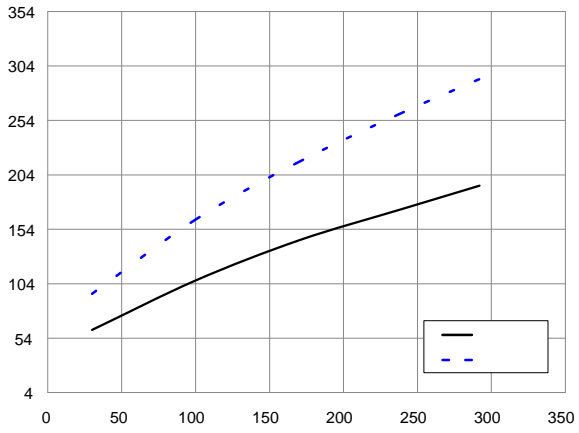


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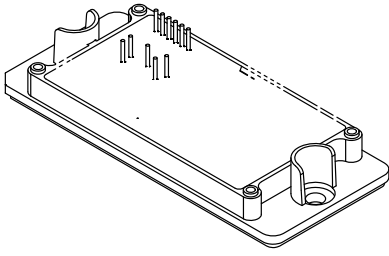


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PIM56, 93x47 (SOLDER PIN)

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