

# Q2BOOST Module

## NXH400B100H4Q2F2SG, NXH400B100H4Q2F2PG

The NXH400B100H4Q2F2xG is a power module containing two channel flying capacitor boost. The integrated field stop trench IGBTs and Si/SiC Diodes provide lower conduction losses and switching losses, enabling designers to achieve high efficiency and superior reliability.

### Features

- Flying Capacitor Boost Module
- 1000 V Field Stop 4 IGBTs and 1200 V SiC Diodes
- Low Inductive Layout
- Solder Pins
- Thermistor
- This is a Pb-Free Device

### Typical Applications

- Solar Inverter
- Energy Storage System

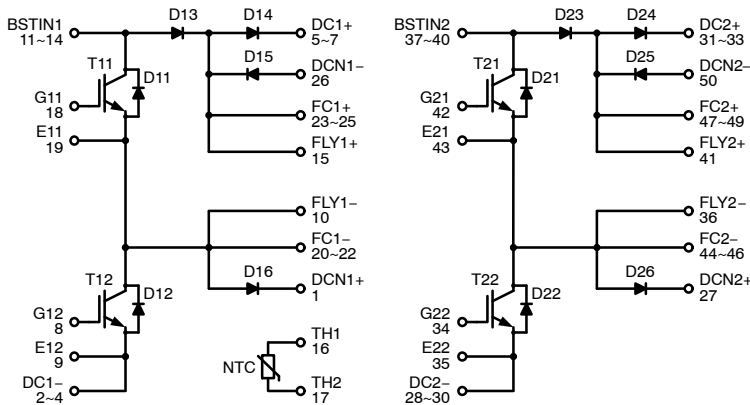
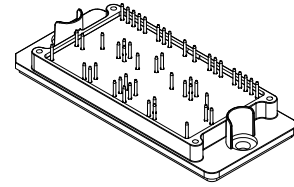
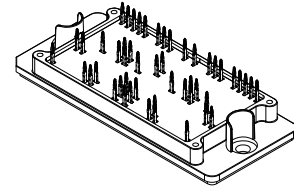


Figure 1. NXH400B100H4Q2F2xG Schematic Diagram

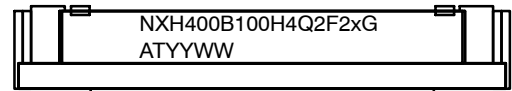


PIM50, 93x47 (SOLDER PIN)  
CASE 180HN



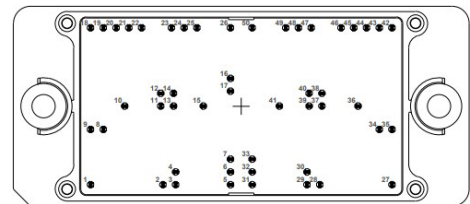
PIM50, 93x47 (1.2MM PRESSFIT PIN)  
CASE 180BB

### MARKING DIAGRAM



NXH400B100H4Q2F2xG = Specific Device Code  
G = Pb-Free Package  
AT = Assembly & Test Site Code  
YYWW = Year and Work Week Code

### PIN CONNECTIONS



### ORDERING INFORMATION

See detailed ordering and shipping information on page 13 of this data sheet.

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**Table 1. ABSOLUTE MAXIMUM RATINGS** ( $T_J = 25^\circ\text{C}$  unless otherwise noted) (Note 1)

Rating	Symbol	Value	Unit
<b>IGBT (T11, T12, T21, T22)</b>			
Collector–Emitter Voltage	$V_{CES}$	1000	V
Gate–Emitter Voltage Positive Transient Gate–Emitter Voltage (tpulse = 5 $\mu\text{s}$ , D < 0.10)	$V_{GE}$	$\pm 20$ 30	V
Continuous Collector Current @ $T_c = 80^\circ\text{C}$ ( $T_J = 175^\circ\text{C}$ )	$I_C$	164	A
Pulsed Collector Current ( $T_J = 175^\circ\text{C}$ ) @ Tpulse = 1 ms	$I_{C(Pulse)}$	492	A
Maximum Power Dissipation ( $T_J = 175^\circ\text{C}$ , $T_h = 80^\circ\text{C}$ )	$P_{tot}$	396	W
Minimum Junction Temperature	$T_{JMIN}$	-40	$^\circ\text{C}$
Maximum Junction Temperature (Note 2)	$T_{JMAX}$	175	$^\circ\text{C}$
<b>IGBT INVERSE DIODE (D11, D12, D21, D22)</b>			
Peak Repetitive Reverse Voltage	$V_{RRM}$	1600	V
Continuous Forward Current @ $T_c = 80^\circ\text{C}$ ( $T_J = 175^\circ\text{C}$ )	$I_F$	78	A
Repetitive Peak Forward Current ( $T_J = 175^\circ\text{C}$ ) @ Tpulse = 1 ms	$I_{FRM}$	234	A
Maximum Power Dissipation ( $T_J = 175^\circ\text{C}$ , $T_h = 80^\circ\text{C}$ )	$P_{tot}$	129	W
Minimum Junction Temperature	$T_{JMIN}$	-40	$^\circ\text{C}$
Maximum Junction Temperature	$T_{JMAX}$	175	$^\circ\text{C}$
<b>BOOST SILICON CARBIDE SCHOTTKY DIODE (D13, D14, D23, D24)</b>			
Peak Repetitive Reverse Voltage	$V_{RRM}$	1200	V
Continuous Forward Current @ $T_c = 80^\circ\text{C}$ ( $T_J = 175^\circ\text{C}$ )	$I_F$	71	A
Repetitive Peak Forward Current ( $T_J = 175^\circ\text{C}$ ) @ Tpulse = 1 ms	$I_{FRM}$	213	A
Maximum Power Dissipation ( $T_J = 175^\circ\text{C}$ , $T_h = 80^\circ\text{C}$ )	$P_{tot}$	245	W
Minimum Junction Temperature	$T_{JMIN}$	-40	$^\circ\text{C}$
Maximum Junction Temperature	$T_{JMAX}$	175	$^\circ\text{C}$
<b>AUXILIARY DIODE (D15, D25)</b>			
Peak Repetitive Reverse Voltage	$V_{RRM}$	1200	V
Continuous Forward Current @ $T_c = 80^\circ\text{C}$ ( $T_J = 175^\circ\text{C}$ )	$I_F$	32	A
Repetitive Peak Forward Current ( $T_J = 175^\circ\text{C}$ ) @ Tpulse = 1 ms	$I_{FRM}$	96	A
Maximum Power Dissipation ( $T_J = 175^\circ\text{C}$ , $T_h = 80^\circ\text{C}$ )	$P_{tot}$	90	W
Minimum Junction Temperature	$T_{JMIN}$	-40	$^\circ\text{C}$
Maximum Junction Temperature	$T_{JMAX}$	175	$^\circ\text{C}$
<b>AUXILIARY DIODE (D16, D26)</b>			
Peak Repetitive Reverse Voltage	$V_{RRM}$	1200	V
Continuous Forward Current @ $T_c = 80^\circ\text{C}$ ( $T_J = 175^\circ\text{C}$ )	$I_F$	59	A
Repetitive Peak Forward Current ( $T_J = 175^\circ\text{C}$ ) @ Tpulse = 1 ms	$I_{FRM}$	177	A
Maximum Power Dissipation ( $T_J = 175^\circ\text{C}$ , $T_h = 80^\circ\text{C}$ )	$P_{tot}$	152	W
Minimum Junction Temperature	$T_{JMIN}$	-40	$^\circ\text{C}$
Maximum Junction Temperature	$T_{JMAX}$	175	$^\circ\text{C}$

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.
2. Qualification at  $175^\circ\text{C}$  per discrete TO247

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**Table 2. THERMAL AND INSULATION PROPERTIES** ( $T_J = 25^\circ\text{C}$  unless otherwise noted) (Note 3)

Rating	Symbol	Value	Unit
<b>THERMAL PROPERTIES</b>			
Operating Temperature under Switching Condition	$T_{VJOP}$	-40 to 150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40 to 125	$^\circ\text{C}$
<b>INSULATION PROPERTIES</b>			
Isolation Test Voltage, $t = 1 \text{ s}$ , 50 Hz	$V_{is}$	4000	$V_{RMS}$
Creepage Distance		12.7	mm
Comparative Tracking Index	CTI	>600	

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

**Table 3. ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$  unless otherwise noted) (Note 4)

Rating	Test Conditions	Symbol	Min	Typ	Max	Unit	
<b>IGBT (T11, T12, T21, T22)</b>							
Collector-Emitter Breakdown Voltage	$V_{GE} = 0 \text{ V}$ , $I_C = 1 \text{ mA}$	$V_{(BR)CES}$	1000	1150	-	V	
Collector-Emitter Cutoff Current	$V_{GE} = 0 \text{ V}$ , $V_{CE} = 1000 \text{ V}$	$I_{CES}$	-	-	300	$\mu\text{A}$	
Collector-Emitter Saturation Voltage	$V_{GE} = 15 \text{ V}$ , $I_C = 200 \text{ A}$ , $T_J = 25^\circ\text{C}$	$V_{CE(sat)}$	-	1.88	2.3	V	
	$V_{GE} = 15 \text{ V}$ , $I_C = 200 \text{ A}$ , $T_J = 175^\circ\text{C}$		-	2.4	-		
Gate-Emitter Threshold Voltage	$V_{GE} = V_{CE}$ , $I_C = 200 \text{ mA}$	$V_{GE(TH)}$	3.8	4.82	6.6	V	
Gate Leakage Current	$V_{GE} = \pm 20 \text{ V}$ , $V_{CE} = 0 \text{ V}$	$I_{GES}$	-	-	1	$\mu\text{A}$	
Internal Gate Resistor		$R_G$	-	3	-	$\Omega$	
Turn-On Delay Time	$T_J = 25^\circ\text{C}$ $V_{CE} = 600 \text{ V}$ , $I_C = 50 \text{ A}$ $V_{GE} = -9 \text{ V}$ , $15 \text{ V}$ , $R_{Gon} = 9 \Omega$ , $R_{Goff} = 25 \Omega$	$t_{d(on)}$	-	119.75	-	ns	
Rise Time		$t_r$	-	30.08	-		
Turn-Off Delay Time		$t_{d(off)}$	-	614.57	-		
Fall Time		$t_f$	-	26.85	-		
Turn On Switching Loss		$E_{on}$	-	860	-		$\mu\text{J}$
Turn Off Switching Loss		$E_{off}$	-	1500	-		
Turn-On Delay Time	$T_J = 125^\circ\text{C}$ $V_{CE} = 600 \text{ V}$ , $I_C = 50 \text{ A}$ $V_{GE} = -9 \text{ V}$ , $15 \text{ V}$ , $R_{Gon} = 9 \Omega$ , $R_{Goff} = 25 \Omega$	$t_{d(on)}$	-	119.97	-	ns	
Rise Time		$t_r$	-	32.09	-		
Turn-Off Delay Time		$t_{d(off)}$	-	706.72	-		
Fall Time		$t_f$	-	40.22	-		
Turn On Switching Loss		$E_{on}$	-	1120	-		$\mu\text{J}$
Turn Off Switching Loss		$E_{off}$	-	2750	-		
Input Capacitance	$V_{CE} = 20 \text{ V}$ , $V_{GE} = 0 \text{ V}$ , $f = 1 \text{ MHz}$	$C_{ies}$	-	12687.7	-	pF	
Output Capacitance		$C_{oes}$	-	418.0	-		
Reverse Transfer Capacitance		$C_{res}$	-	73.9	-		
Gate Charge	$V_{CE} = 600 \text{ V}$ , $I_C = 40 \text{ A}$ , $V_{GE} = -15 \text{ V} \sim 15 \text{ V}$	$Q_g$	-	680	-	nC	
Thermal Resistance - Chip-to-heatsink	Thermal grease, Thickness = 2.1 Mil $\pm 2\%$ $\lambda = 2.87 \text{ W/mK}$	$R_{thJH}$	-	0.430	-	K/W	
Thermal Resistance - chip-to-case		$R_{thJC}$	-	0.240	-	K/W	
<b>IGBT INVERSE DIODE (D11, D12, D21, D22)</b>							
Diode Forward Voltage	$I_F = 50 \text{ A}$ , $T_J = 25^\circ\text{C}$	$V_F$	-	1.14	1.5	V	
	$I_F = 50 \text{ A}$ , $T_J = 175^\circ\text{C}$		-	1.03	-		
Thermal Resistance - Chip-to-heatsink	Thermal grease, Thickness = 2.1 Mil $\pm 2\%$ $\lambda = 2.87 \text{ W/mK}$	$R_{thJH}$	-	0.739	-	K/W	
Thermal Resistance - Chip-to-case		$R_{thJC}$	-	0.594	-	K/W	

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**Table 3. ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$  unless otherwise noted) (Note 4) (continued)

Rating	Test Conditions	Symbol	Min	Typ	Max	Unit
<b>BOOST SILICON CARBIDE SCHOTTKY DIODE (D13, D14, D23, D24)</b>						
Diode Forward Voltage	$I_F = 60\text{ A}, T_J = 25^\circ\text{C}$	$V_F$	-	1.48	1.8	V
	$I_F = 60\text{ A}, T_J = 175^\circ\text{C}$		-	2.14	-	
Reverse Recovery Time	$T_J = 25^\circ\text{C}$ $V_{CE} = 600\text{ V}, I_C = 50\text{ A}$ $V_{GE} = -9\text{ V}, 15\text{ V}, R_{Gon} = 9\ \Omega$	$t_{rr}$	-	28.14	-	ns
Reverse Recovery Charge		$Q_{rr}$	-	304.98	-	nC
Peak Reverse Recovery Current		$I_{RRM}$	-	18.8	-	A
Peak Rate of Fall of Recovery Current		$di/dt$	-	1389.1 2	-	A/ $\mu\text{s}$
Reverse Recovery Energy		$E_{rr}$	-	105.08	-	$\mu\text{J}$
Reverse Recovery Time		$T_J = 125^\circ\text{C}$ $V_{CE} = 600\text{ V}, I_C = 50\text{ A}$ $V_{GE} = -9\text{ V}, 15\text{ V}, R_{Gon} = 9\ \Omega$	$t_{rr}$	-	45.73	-
Reverse Recovery Charge	$Q_{rr}$		-	583.95	-	nC
Peak Reverse Recovery Current	$I_{RRM}$		-	24.08	-	A
Peak Rate of Fall of Recovery Current	$di/dt$		-	1236	-	A/ $\mu\text{s}$
Reverse Recovery Energy	$E_{rr}$		-	216.04	-	$\mu\text{J}$
Thermal Resistance – Chip-to-heatsink	Thermal grease, Thickness = 2.1 Mil $\pm 2\%$ $\lambda = 2.87\text{ W/mK}$		$R_{thJH}$	-	0.532	-
Thermal Resistance – Chip-to-case		$R_{thJC}$	-	0.387	-	K/W

**AUXILIARY DIODE (D15, D25)**

Diode Forward Voltage	$I_F = 30\text{ A}, T_J = 25^\circ\text{C}$	$V_F$	-	2.3	2.9	V
	$I_F = 30\text{ A}, T_J = 175^\circ\text{C}$		-	2.1	-	
Thermal Resistance – Chip-to-heatsink	Thermal grease, Thickness = 2.1 Mil $\pm 2\%$ $\lambda = 2.9\text{ W/mK}$	$R_{thJH}$	-	1.187	-	K/W
Thermal Resistance – Chip-to-case		$R_{thJC}$	-	1.058	-	K/W

**AUXILIARY DIODE (D16, D26)**

Diode Forward Voltage	$I_F = 75\text{ A}, T_J = 25^\circ\text{C}$	$V_F$	-	2.87	3.5	V
	$I_F = 75\text{ A}, T_J = 175^\circ\text{C}$		-	2.19	-	
Thermal Resistance – Chip-to-heatsink	Thermal grease, Thickness = 2.1 Mil $\pm 2\%$ $\lambda = 2.9\text{ W/mK}$	$R_{thJH}$	-	0.746	-	K/W
Thermal Resistance – Chip-to-case		$R_{thJC}$	-	0.627	-	K/W

**THERMISTOR CHARACTERISTICS**

Nominal Resistance	$T = 25^\circ\text{C}$	$R_{25}$	-	5	-	k $\Omega$
Nominal Resistance	$T = 100^\circ\text{C}$	$R_{100}$	-	490.6	-	$\Omega$
Deviation of R25		$\Delta R/R$	-1	-	1	%
Power Dissipation		$P_D$	-	5	-	mW
Power Dissipation Constant			-	1.3	-	mW/K
B-value	B(25/85), tolerance $\pm 1\%$		-	3435	-	K

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

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## TYPICAL CHARACTERISTICS – T11||D13, T12||D14, T21||D23, T22||D24

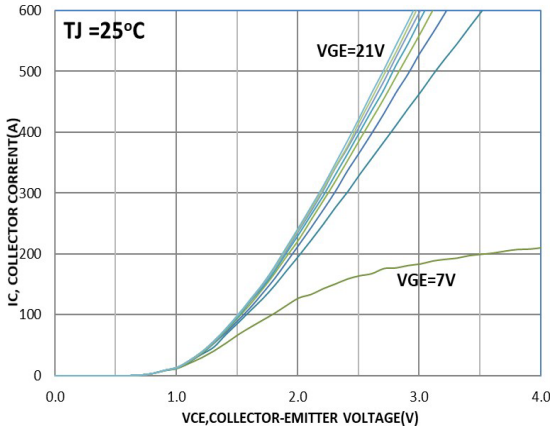


Figure 2. Typical Output Characteristics

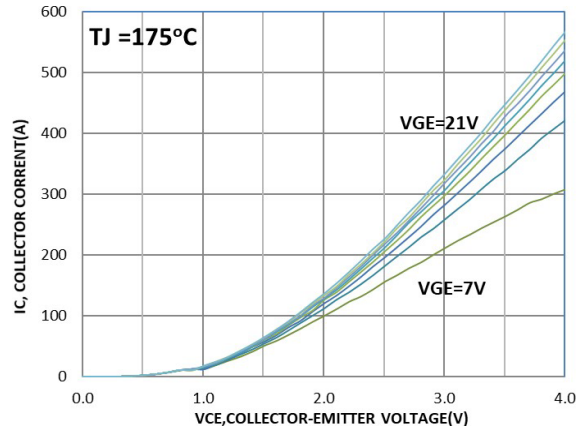


Figure 3. Typical Output Characteristics

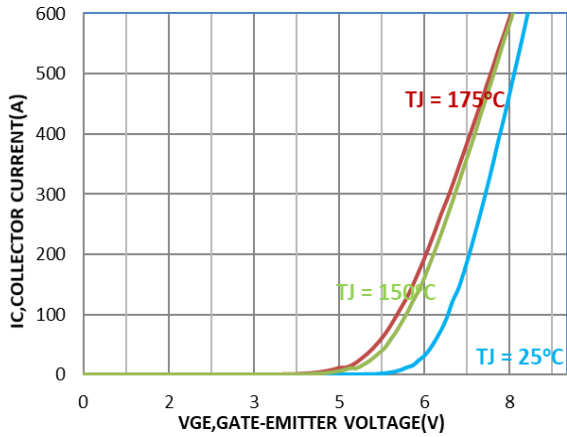


Figure 4. Transfer Characteristics

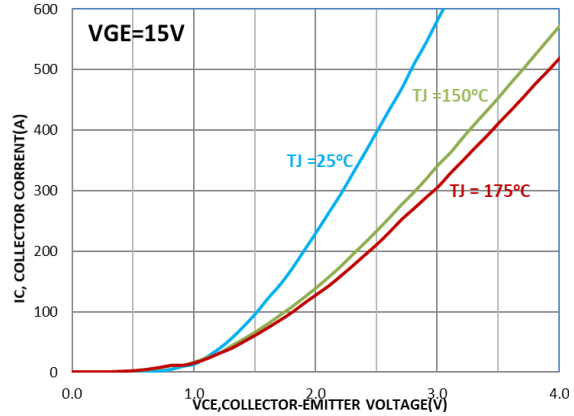


Figure 5. Saturation Voltage Characteristics

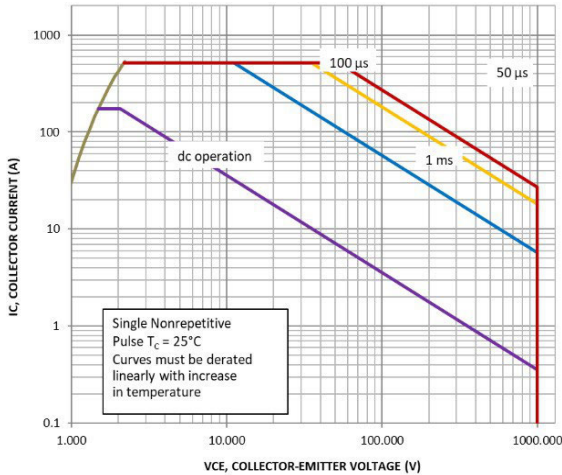


Figure 6. FBSOA

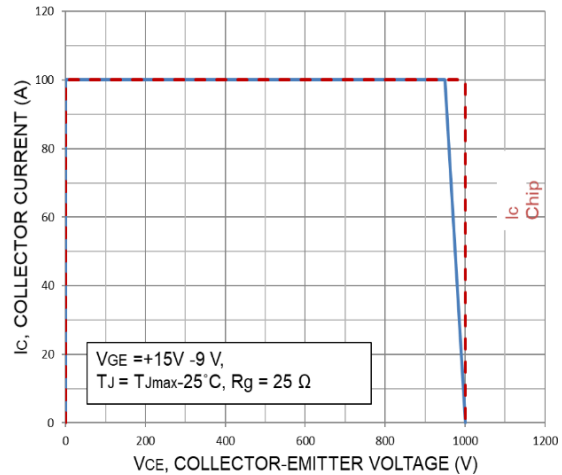


Figure 7. RBSOA

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## TYPICAL CHARACTERISTICS - T11||D13, T12||D14, T21||D23, T22||D24 (CONTINUED)

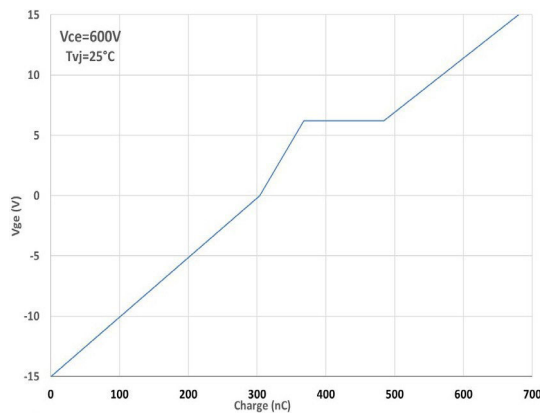


Figure 8. Gate Voltage vs. Gate Charge

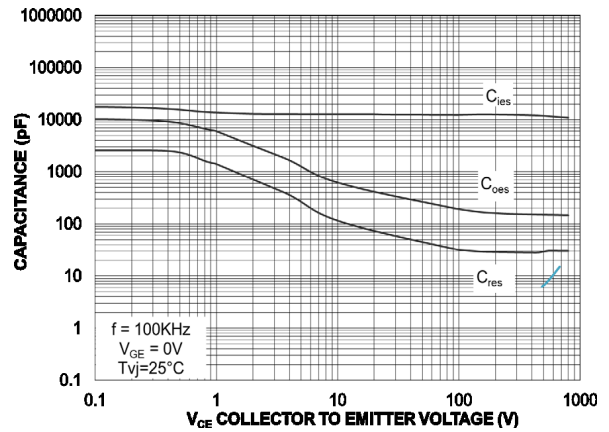


Figure 9. Capacitance

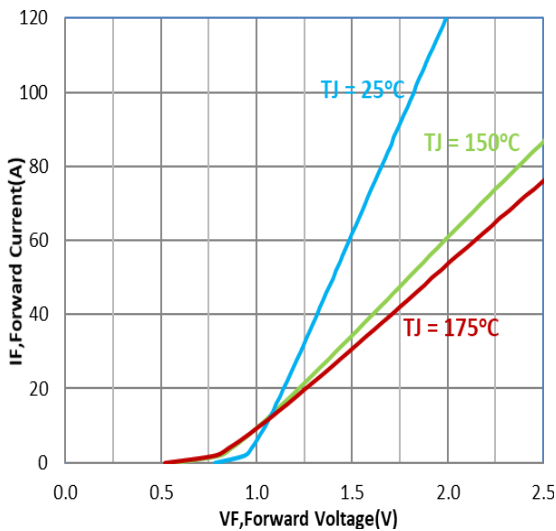


Figure 10. Diode Forward Characteristics

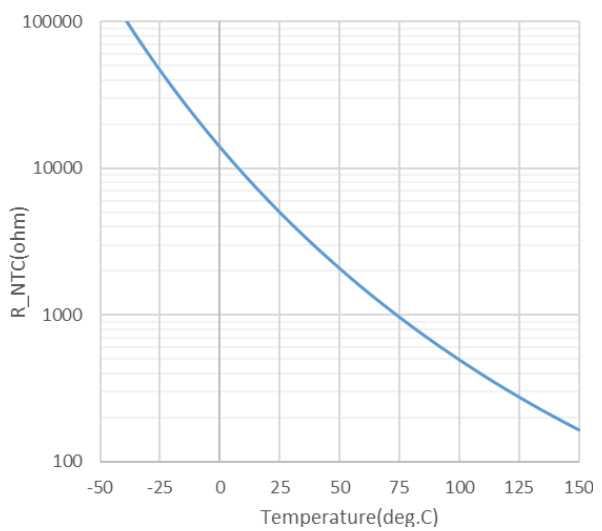


Figure 11. Temperature vs. NTC Value

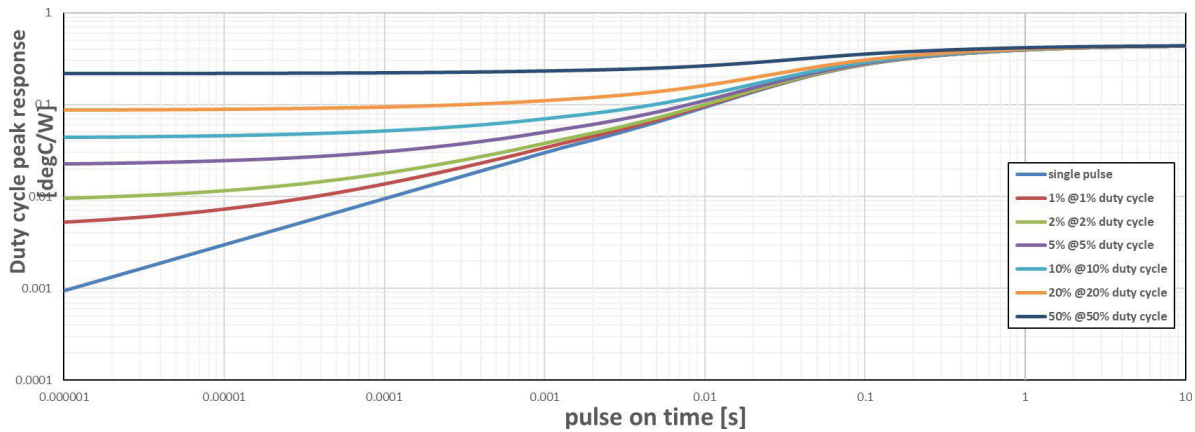


Figure 12. Transient Thermal Impedance (IGBT Rthjh)

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## TYPICAL CHARACTERISTICS – T11||D13, T12||D14, T21||D23, T22||D24 (CONTINUED)

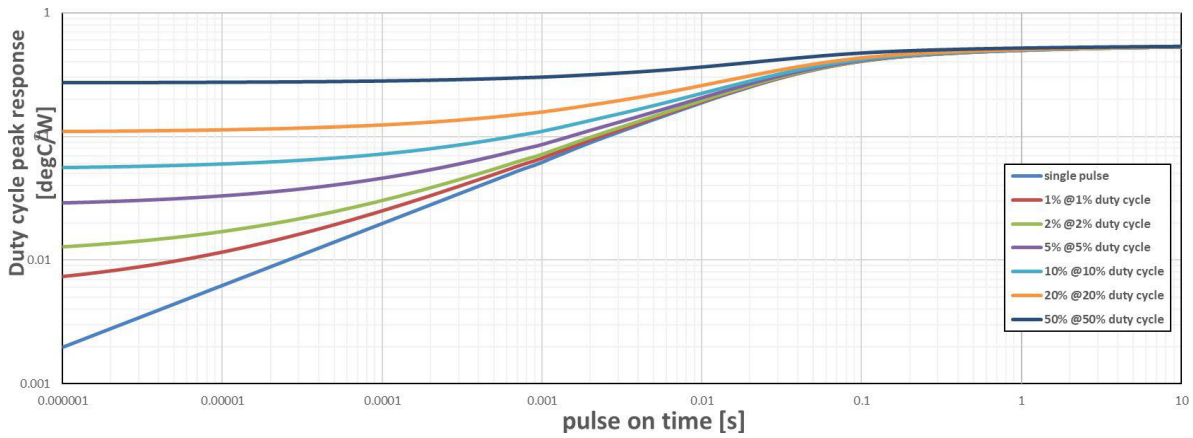


Figure 13. Transient Thermal Impedance (DIODE Rthjh)

## TYPICAL CHARACTERISTICS – D11, D12, D21, D22 DIODE

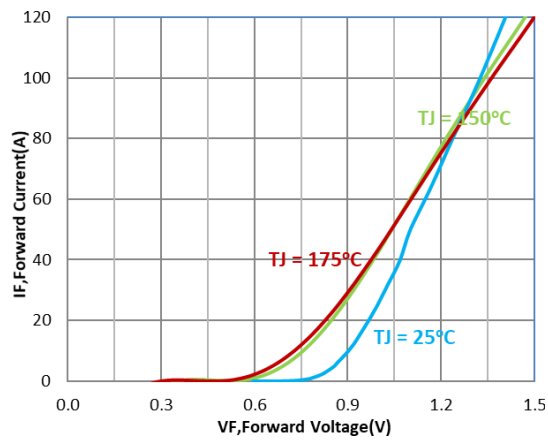


Figure 14. Diode Forward Characteristics

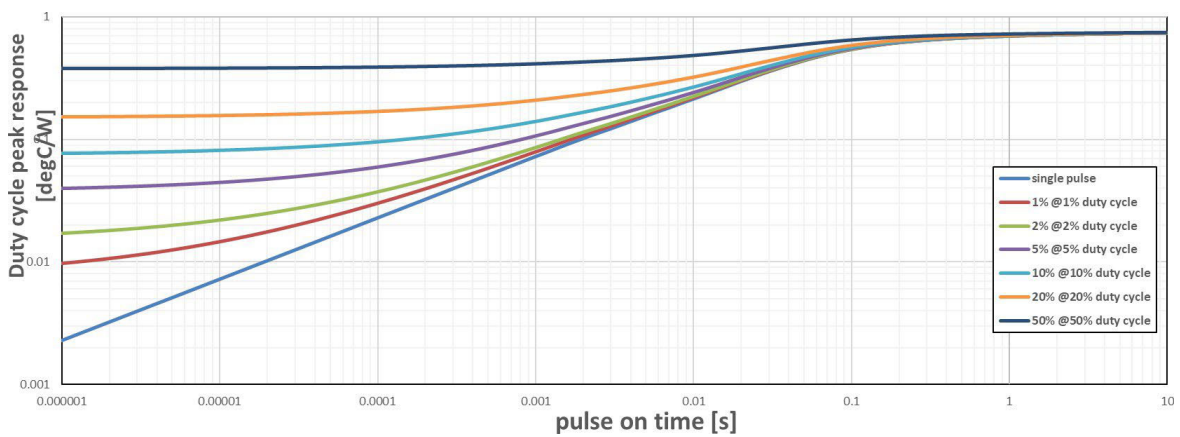


Figure 15. Transient Thermal Impedance (Rthjh)

TYPICAL CHARACTERISTICS – D15, D25 DIODE

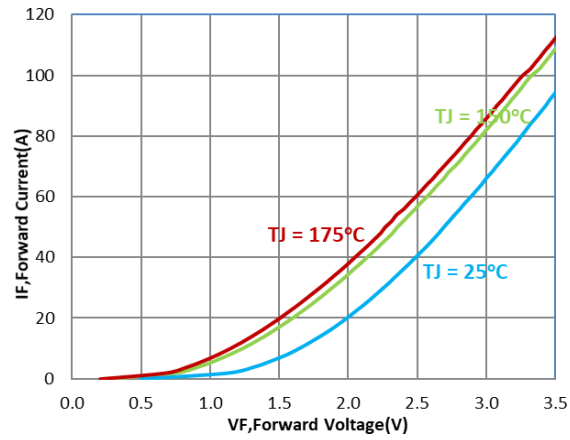


Figure 16. Diode Forward Characteristics

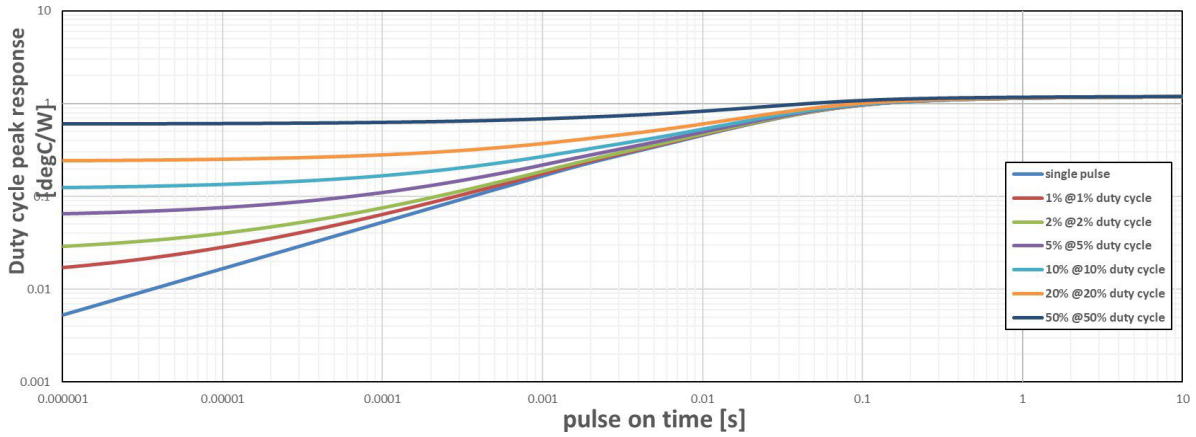


Figure 17. Transient Thermal Impedance (Rthjh)



TYPICAL CHARACTERISTICS – D16, D26 DIODE

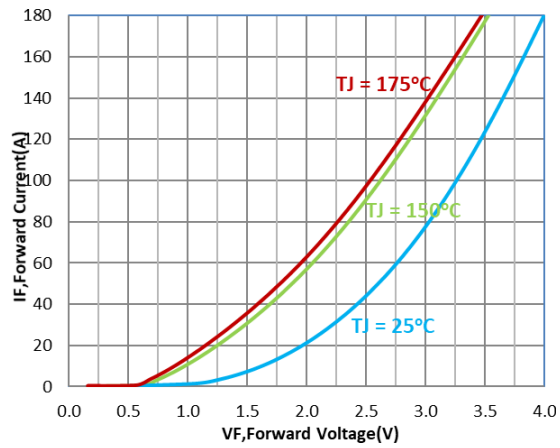


Figure 18. Diode Forward Characteristics

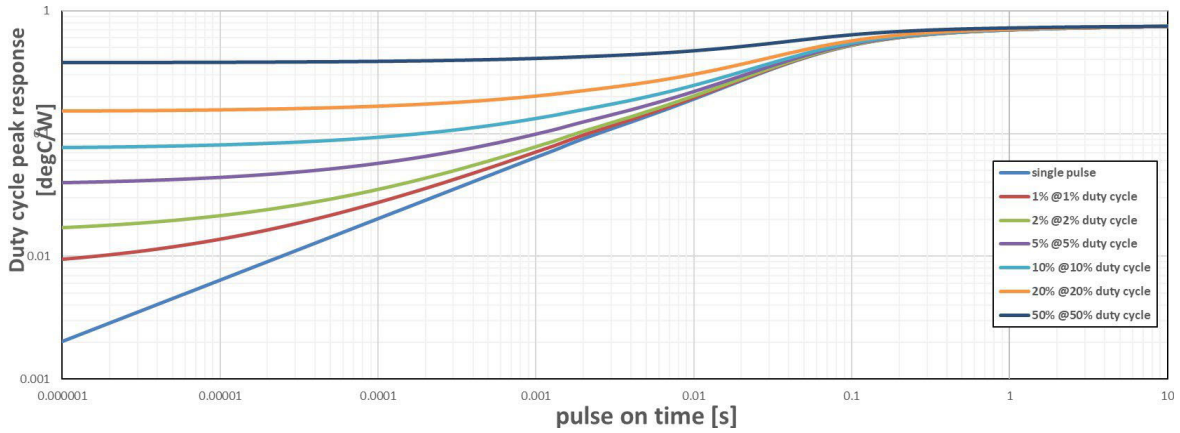


Figure 19. Transient Thermal Impedance (Rthjh)

# NXH400B100H4Q2F2SG, NXH400B100H4Q2F2PG

## TYPICAL CHARACTERISTICS – T11||D13, T12||D14, T21||D23, T22||D24

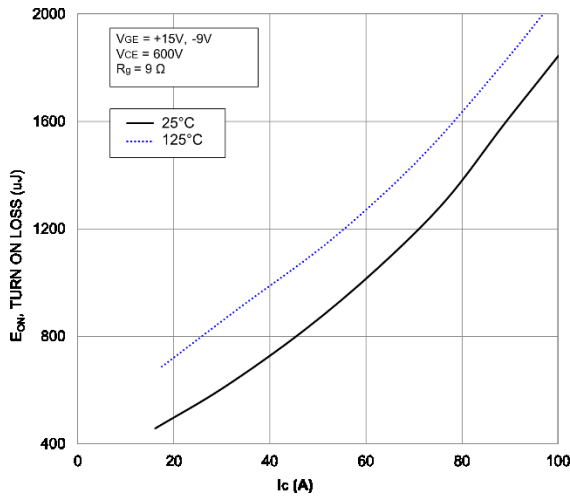


Figure 20. Typical Turn On Loss vs.  $I_C$

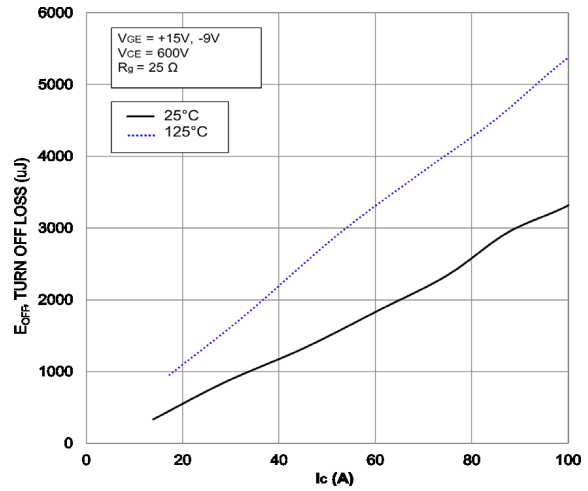


Figure 21. Typical Turn Off Loss vs.  $I_C$

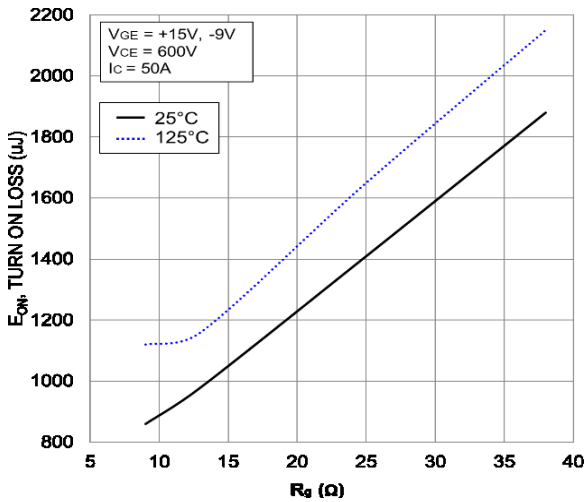


Figure 22. Typical Turn On Loss vs.  $R_G$

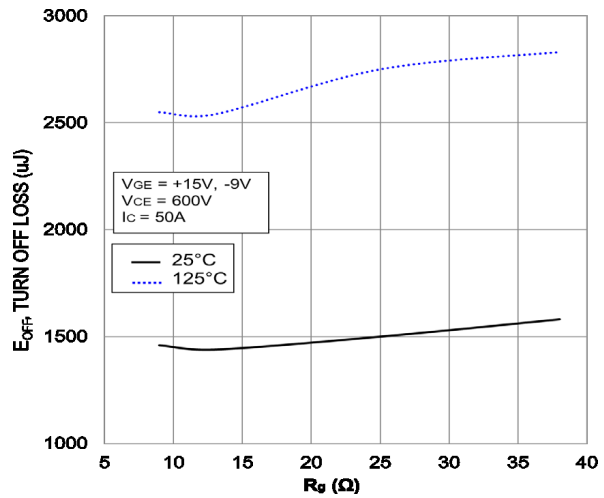


Figure 23. Typical Turn Off Loss vs.  $R_G$

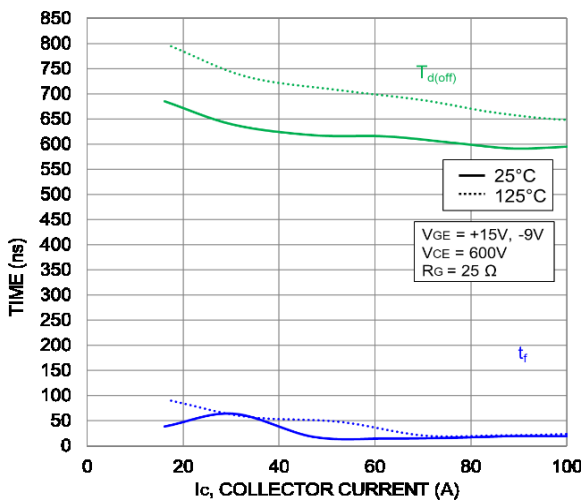


Figure 24. Typical Turn-Off Switching Time vs.  $I_C$

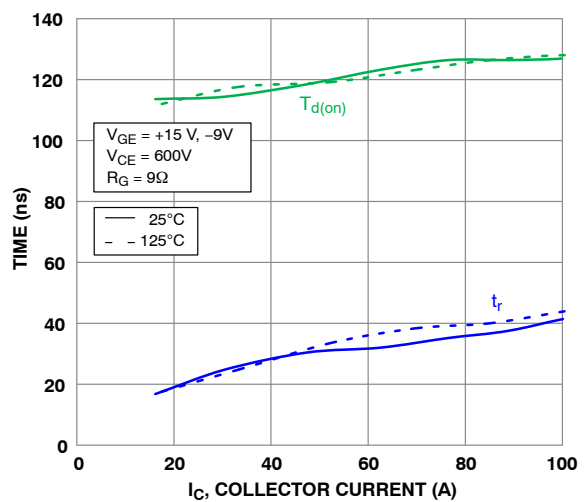


Figure 25. Typical Turn-On Switching Time vs.  $I_C$

# NXH400B100H4Q2F2SG, NXH400B100H4Q2F2PG

## TYPICAL CHARACTERISTICS – T11||D13, T12||D14, T21||D23, T22||D24 (CONTINUED)

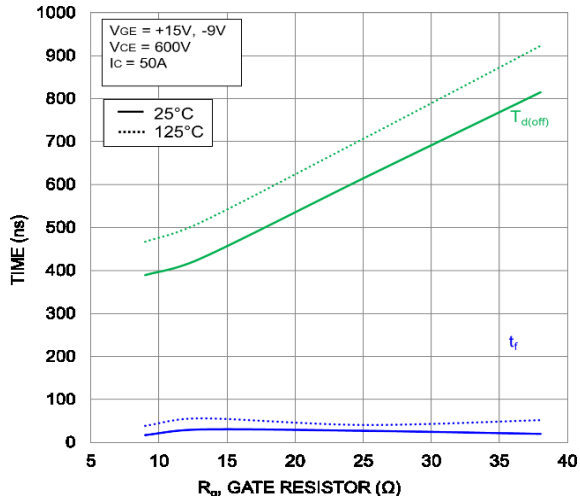


Figure 26. Typical Turn-Off Switching Time vs.  $R_g$

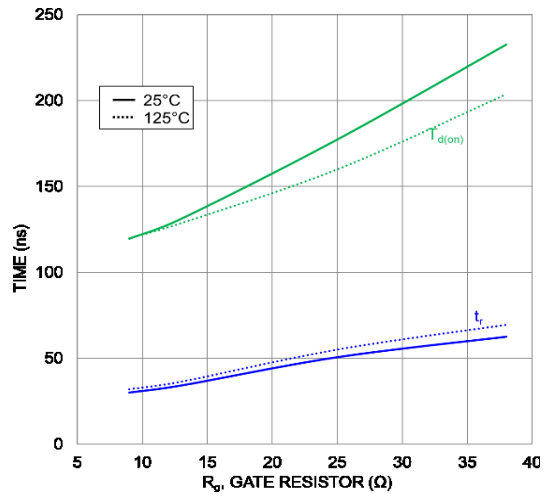


Figure 27. Typical Turn-On Switching Time vs.  $R_g$

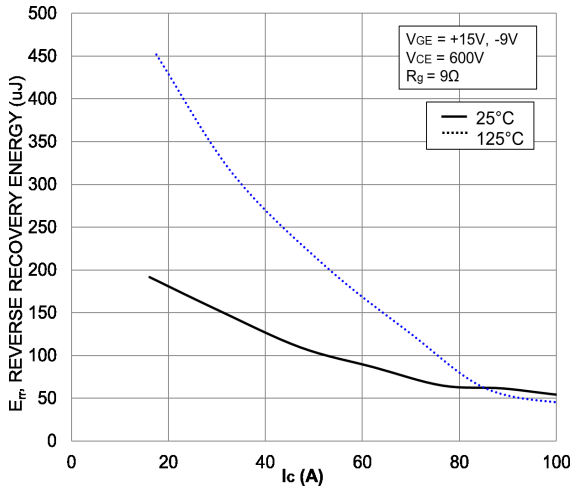


Figure 28. Typical Reverse Recovery Energy Loss vs.  $I_C$

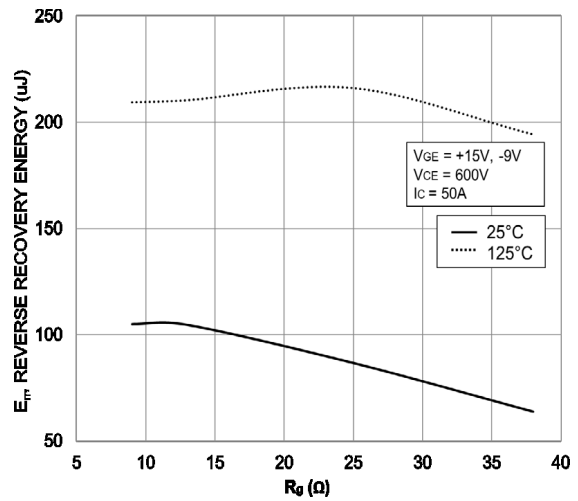


Figure 29. Typical Reverse Recovery Energy Loss vs.  $R_g$

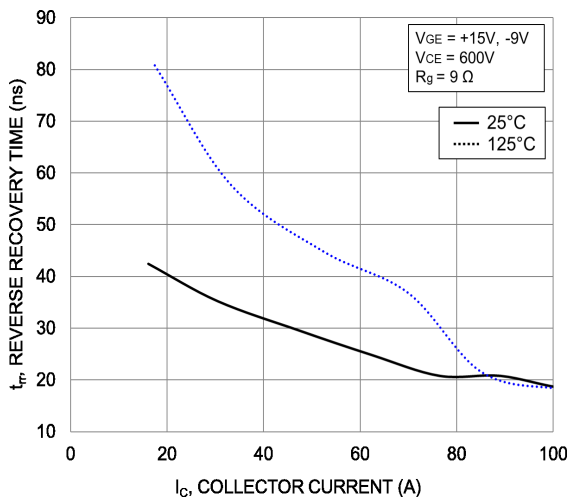


Figure 30. Typical Reverse Recovery Time vs.  $I_C$

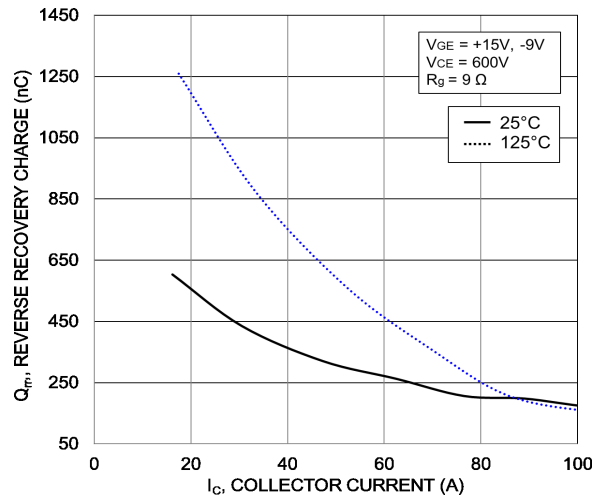


Figure 31. Typical Reverse Recovery Time vs.  $I_C$

# NXH400B100H4Q2F2SG, NXH400B100H4Q2F2PG

## TYPICAL CHARACTERISTICS - T11||D13, T12||D14, T21||D23, T22||D24 (CONTINUED)

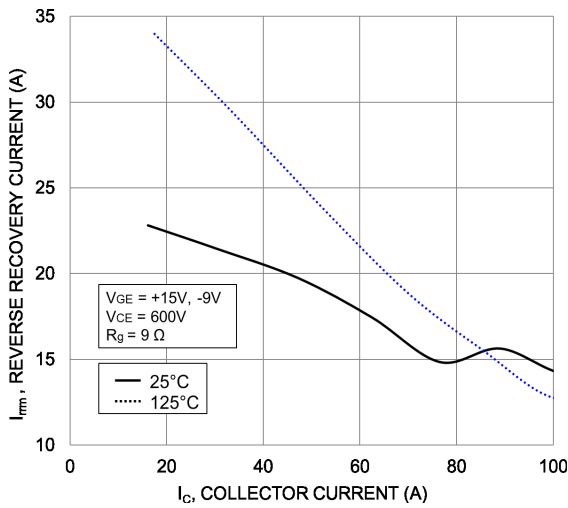


Figure 32. Typical Reverse Recovery Current vs.  $I_C$

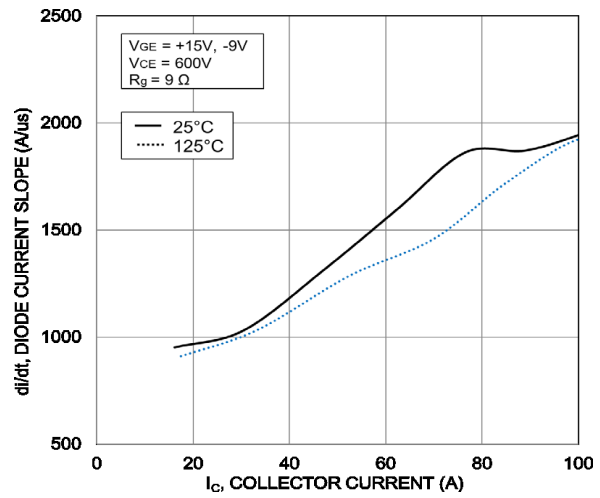


Figure 33. Typical  $di/dt$  vs.  $I_C$

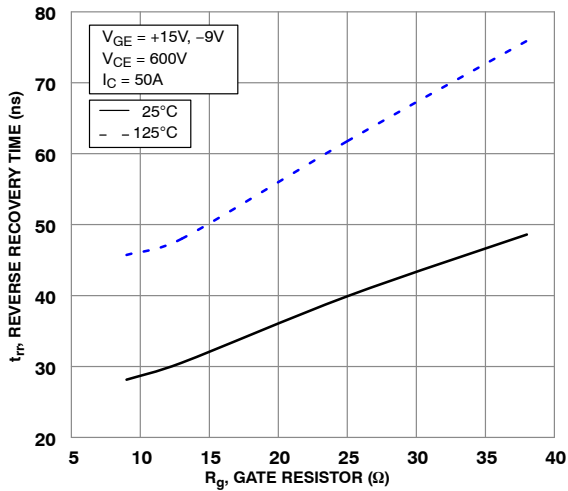


Figure 34. Typical Reverse Recovery Time vs.  $R_g$

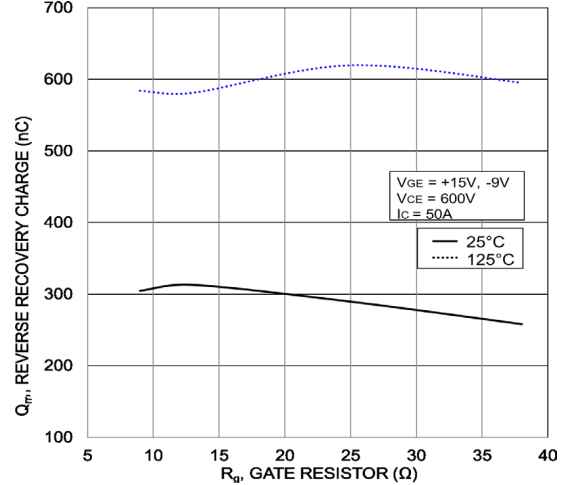


Figure 35. Typical Reverse Recovery Charge vs.  $R_g$

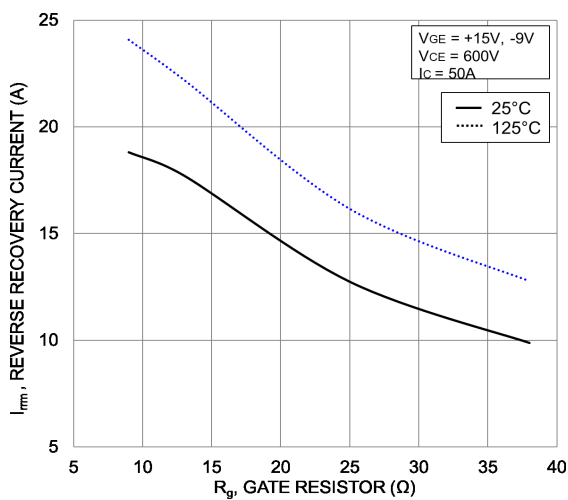


Figure 36. Typical Reverse Recovery Peak Current vs.  $R_g$

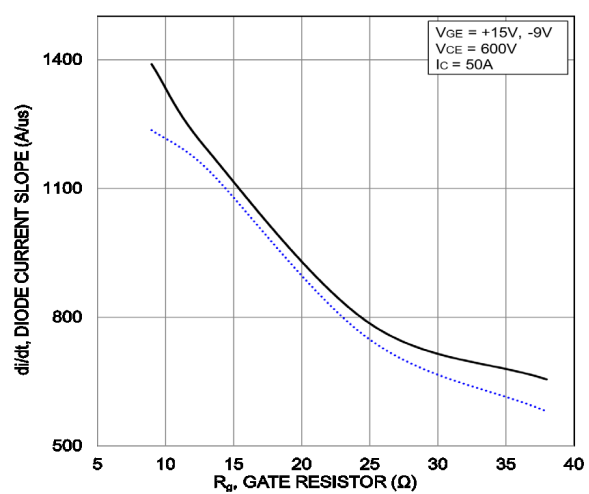


Figure 37. Typical  $di/dt$  vs.  $R_g$

## NXH400B100H4Q2F2SG, NXH400B100H4Q2F2PG

### ORDERING INFORMATION

Orderable Part Number	Marking	Package	Shipping
NXH400B100H4Q2F2SG	NXH400B100H4Q2F2SG	Q2BOOST – PIM50 (Pb-Free and Halide-Free Solder Pins)	12 Units / Blister Tray
NXH400B100H4Q2F2PG	NXH400B100H4Q2F2PG	Q2BOOST – PIM50 (Pb-Free and Halide-Free Press-fit Pins)	12 Units / Blister Tray

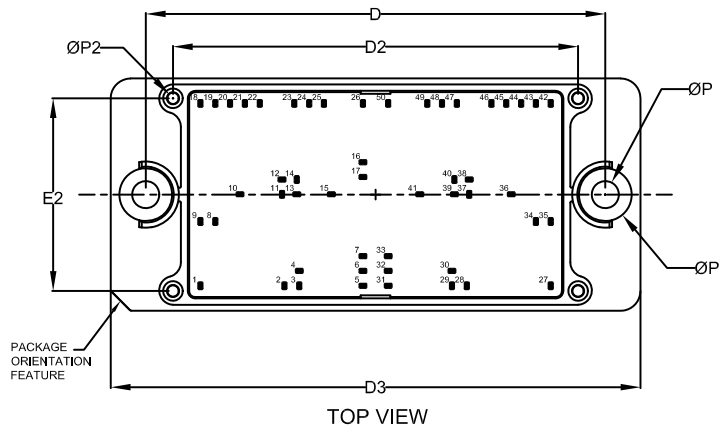
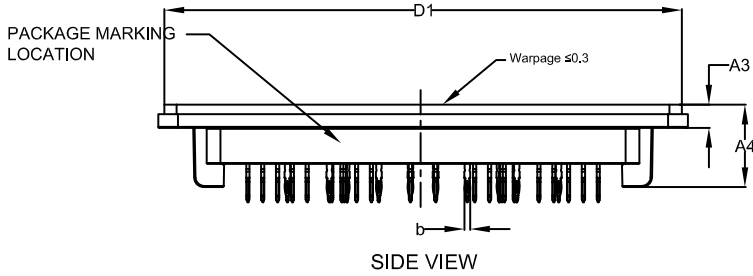
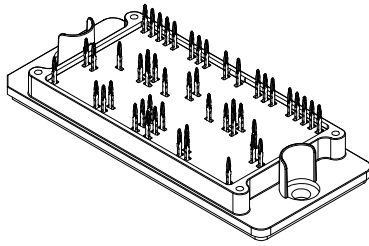
# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS



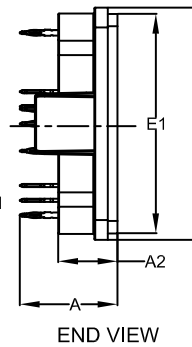
**PIM50 93.00x47.00x12.00**  
**CASE 180BB**  
**ISSUE B**

DATE 15 SEP 2023



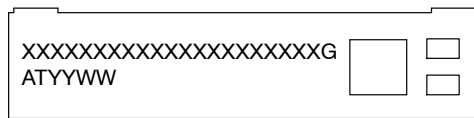
**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009
2. CONTROLLING DIMENSION : MILLIMETERS
3. DIMENSIONS b AND b1 APPLY TO THE PLATED TERMINALS AND ARE MEASURED AT DIMENSION A1
4. PIN POSITION TOLERANCE IS  $\pm 0.4\text{mm}$
5. PACKAGE MARKING IS LOCATED AS SHOWN ON THE SIDE OPPOSITE THE PACKAGE ORIENTATION FEATURES
6. PRESS FIT PIN

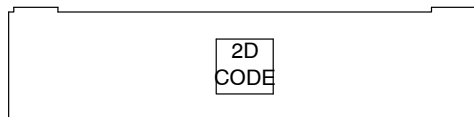


DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	19.36	19.76	20.16
A2	11.70	12.00	12.30
A3	4.40	4.70	5.00
A4	16.40	16.70	17.00
b	1.15	1.20	1.25
D	92.90	93.00	93.10
D1	104.45	104.75	105.05
D2	81.80	82.00	82.20
D3	106.90	107.20	107.50
E	46.20	47.00	47.80
E1	44.10	44.40	44.70
E2	38.80	39.00	39.20
P	5.40	5.50	5.60
P1	10.60	10.70	10.80
P2	1.80	2.00	2.20

**GENERIC MARKING DIAGRAM\***



FRONTSIDE MARKING



BACKSIDE MARKING

XXXXX = Specific Device Code  
 G = Pb-Free Device  
 AT = Assembly & Test Site Code  
 YYWW = Year and Work Week Code

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

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<b>DESCRIPTION:</b>	<b>PIM50 93.00x47.00x12.00</b>	<b>PAGE 1 OF 2</b>

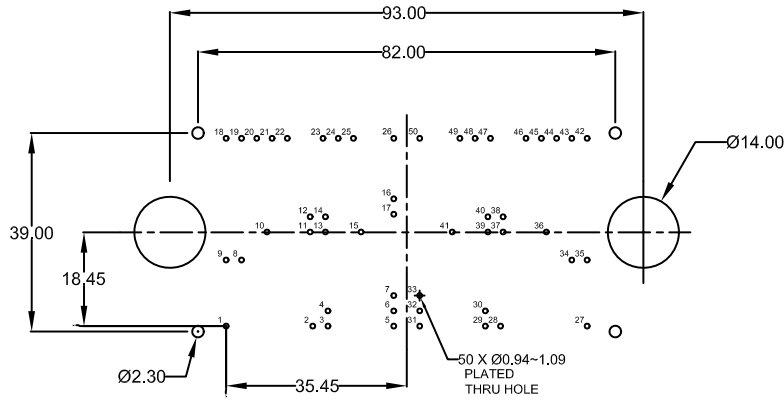
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**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**



**PIM50 93.00x47.00x12.00**  
**CASE 180BB**  
**ISSUE B**

DATE 15 SEP 2023



**RECOMMENDED**  
**MOUNTING PATTERN**

\* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

NOTE 4

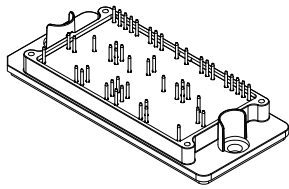
MOUNTING HOLE POSITION					
Pin #	X	Y	Pin #	X	Y
1	0	0	26	32.9	36.9
2	17	0	27	70.9	0
3	20	0	28	53.9	0
4	20	3	29	50.9	0
5	32.9	0	30	50.9	3
6	32.9	3	31	38	0
7	32.9	6	32	38	3
8	3	13	33	38	6
9	0	13	34	67.9	13
10	8	18.5	35	70.9	13
11	16.5	18.5	36	62.9	18.5
12	16.5	21.5	37	54.4	18.5
13	19.5	18.5	38	54.4	21.5
14	19.5	21.5	39	51.4	18.5
15	26.5	18.5	40	51.4	21.5
16	32.9	25	41	44.4	18.5
17	32.9	22	42	70.9	36.9
18	0	36.9	43	67.9	36.9
19	3	36.9	44	64.9	36.9
20	6	36.9	45	61.9	36.9
21	9	36.9	46	58.9	36.9
22	12	36.9	47	51.9	36.9
23	19	36.9	48	48.9	36.9
24	22	36.9	49	45.9	36.9
25	25	36.9	50	38	36.9

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<b>DESCRIPTION:</b>	<b>PIM50 93.00x47.00x12.00</b>	<b>PAGE 2 OF 2</b>

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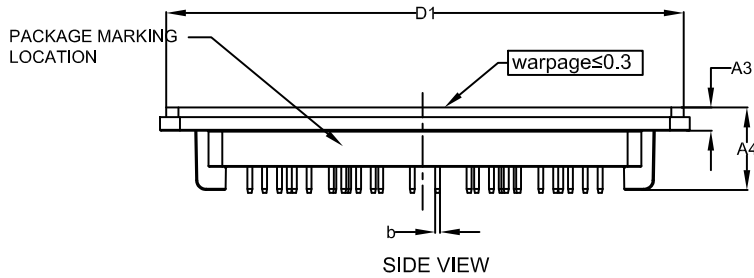
# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS



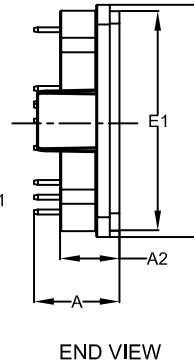
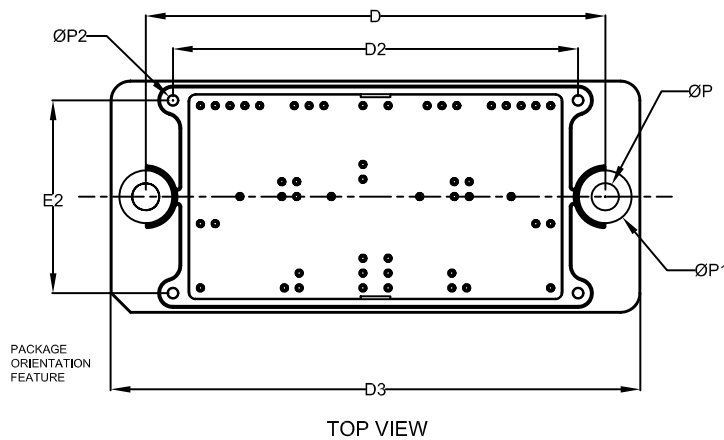
**PIM50, 93.00x47.00x12.00**  
**CASE 180HN**  
**ISSUE A**

DATE 24 JUL 2023



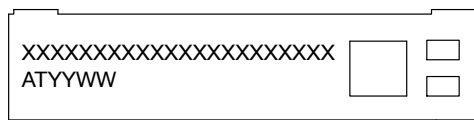
**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009
2. CONTROLLING DIMENSION : MILLIMETERS
3. DIMENSIONS b AND b1 APPLY TO THE PLATED TERMINALS AND ARE MEASURED AT DIMENSION A1
4. PIN POSITION TOLERANCE IS ± 0.4mm
5. PACKAGE MARKING IS LOCATED AS SHOWN ON THE SIDE OPPOSITE THE PACKAGE ORIENTATION FEATURES
6. SOLDER PIN

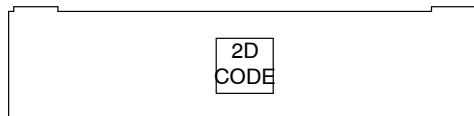


DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	16.90	17.30	17.70
A2	11.70	12.00	12.30
A3	4.40	4.70	5.00
A4	16.40	16.70	17.00
b	0.95	1.00	1.05
D	92.90	93.00	93.10
D1	104.45	104.75	105.05
D2	81.80	82.00	82.20
D3	106.90	107.20	107.50
E	46.70	47.00	47.30
E1	44.10	44.40	44.70
E2	38.80	39.00	39.20
P	5.40	5.50	5.60
P1	10.60	10.70	10.80
P2	1.80	2.00	2.20

**GENERIC MARKING DIAGRAM\***



FRONTSIDE MARKING



BACKSIDE MARKING

XXXXX = Specific Device Code  
 AT = Assembly & Test Site Code  
 YYWW = Year and Work Week Code

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

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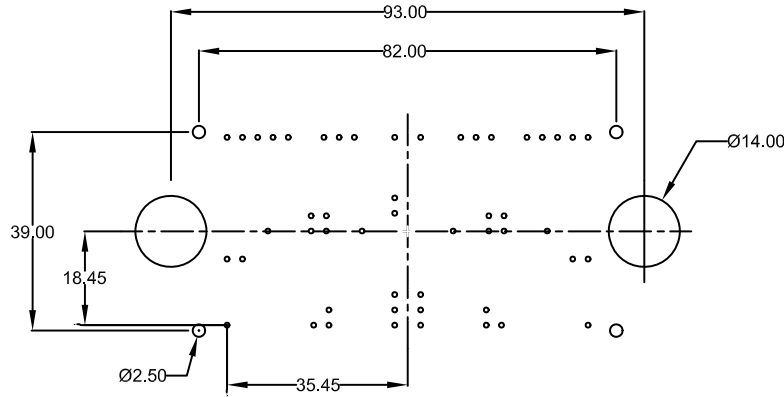


**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**



**PIM50, 93.00x47.00x12.00**  
**CASE 180HN**  
**ISSUE A**

DATE 24 JUL 2023



**RECOMMENDED MOUNTING PATTERN**

\* For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

**S Pin position**

Pin #	X	Y	Function	Pin #	X	Y	Function
1	0	0	DCN1+	26	32.9	36.9	DCN1-
2	17	0	DC1-	27	70.9	0	DCN2+
3	20	0	DC1-	28	53.9	0	DC2-
4	20	3	DC1-	29	50.9	0	DC2-
5	32.9	0	DC1+	30	50.9	3	DC2-
6	32.9	3	DC1+	31	38	0	DC2+
7	32.9	6	DC1+	32	38	3	DC2+
8	3	13	G12	33	38	6	DC2+
9	0	13	E12	34	67.9	13	G22
10	8	18.5	FLY1-	35	70.9	13	E22
11	16.5	18.5	BSTIN1	36	62.9	18.5	FLY2-
12	16.5	21.5	BSTIN1	37	54.4	18.5	BSTIN2
13	19.5	18.5	BSTIN1	38	54.4	21.5	BSTIN2
14	19.5	21.5	BSTIN1	39	51.4	18.5	BSTIN2
15	26.5	18.5	FLY1+	40	51.4	21.5	BSTIN2
16	32.9	25	TH1	41	44.4	18.5	FLY2+
17	32.9	22	TH2	42	70.9	36.9	G21
18	0	36.9	G11	43	67.9	36.9	E21
19	3	36.9	E11	44	64.9	36.9	FC2-
20	6	36.9	FC1-	45	61.9	36.9	FC2-
21	9	36.9	FC1-	46	58.9	36.9	FC2-
22	12	36.9	FC1-	47	51.9	36.9	FC2+
23	19	36.9	FC1+	48	48.9	36.9	FC2+
24	22	36.9	FC1+	49	45.9	36.9	FC2+
25	25	36.9	FC1+	50	38	36.9	DCN2-

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