

Features

- Typ. $R_{DS(on)} = 40 \text{ m}\Omega$
- Ultra Low Gate Charge (Typ. $Q_{G(tot)} = 106 \text{ nC}$)
- Low Effective Output Capacitance (Typ. $C_{oss} = 139 \text{ pF}$)
- 100% Avalanche Tested
- $T_J = 175^\circ\text{C}$
- This Device is Halide Free and RoHS Compliant with exemption 7a, Pb-Free 2LI (on second level interconnection)

Typical Applications

- UPS
- DC-DC Converter
- Boost Inverter

MAXIMUM RATINGS

		V_{GS}	25/ -15	V
Recommended Operation Values of Gate-Source Voltage		$T_C < 175^\circ\text{C}$	V_{GSop}	+20/-5
Continuous Drain Current (Note 1)	Steady State	$T_C = 25^\circ\text{C}$	I_D	60
Power Dissipation (Note 1)			P_D	357
Continuous Drain Current (Note 1)				A
				W

Single Pulse Drain-to-Source Avalanche Energy ($I_L = 34 \text{ A}_{pk}$, $L = 1 \text{ mH}$) (Note 3)	E_{AS}	578	mJ
Maximum Lead Temperature for Soldering, 1/8" from Case for 10 Seconds	T_L	300	$^\circ\text{C}$

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. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. Repetitive rating, limited by max junction temperature.
3. E_{AS} of 578 mJ is based on starting $T_J = 25^\circ\text{C}$; $L = 1 \text{ mH}$, $I_{AS} = 34 \text{ A}$, $V_{DD} = 120 \text{ V}$, $V_{GS} = 18 \text{ V}$.

NTBG040N120SC1

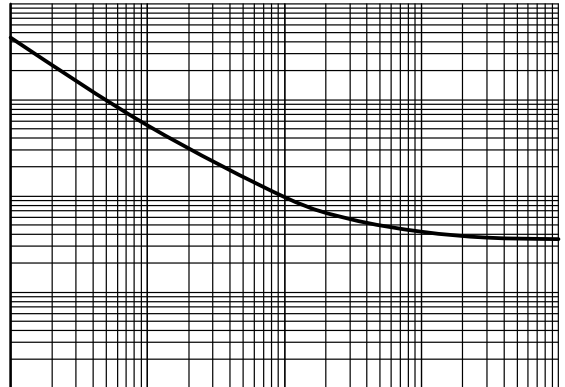
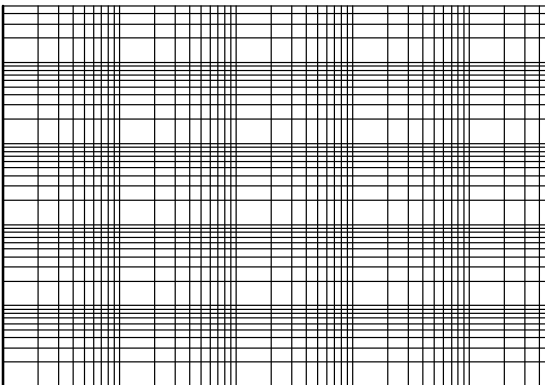
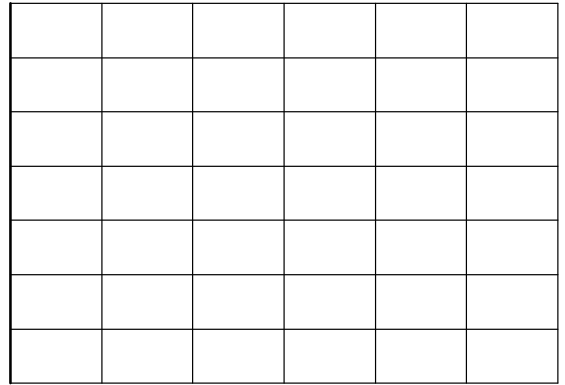
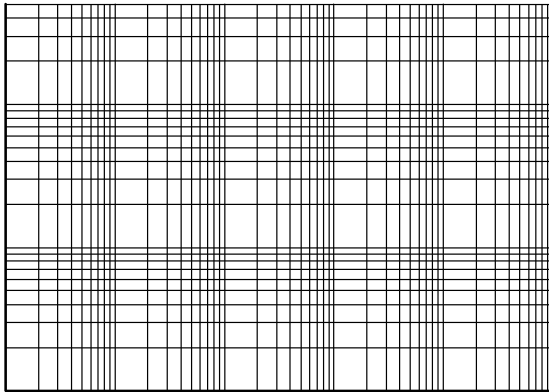
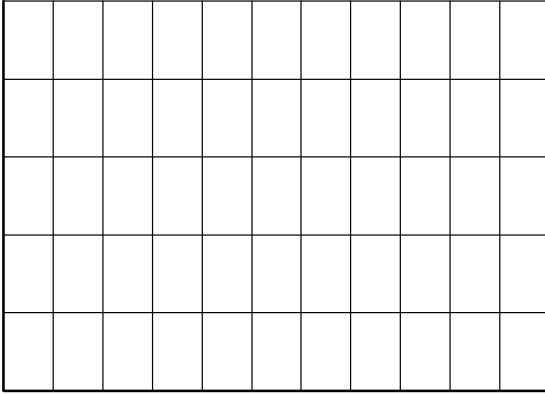
Table 1. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-to-Case (Note 1)	$R_{\theta JC}$	0.42	°C/W
Thermal Resistance Junction-to-Ambient (Note 1)	R		



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TYPICAL CHARACTERISTICS (continued)



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TYPICAL CHARACTERISTICS (continued)

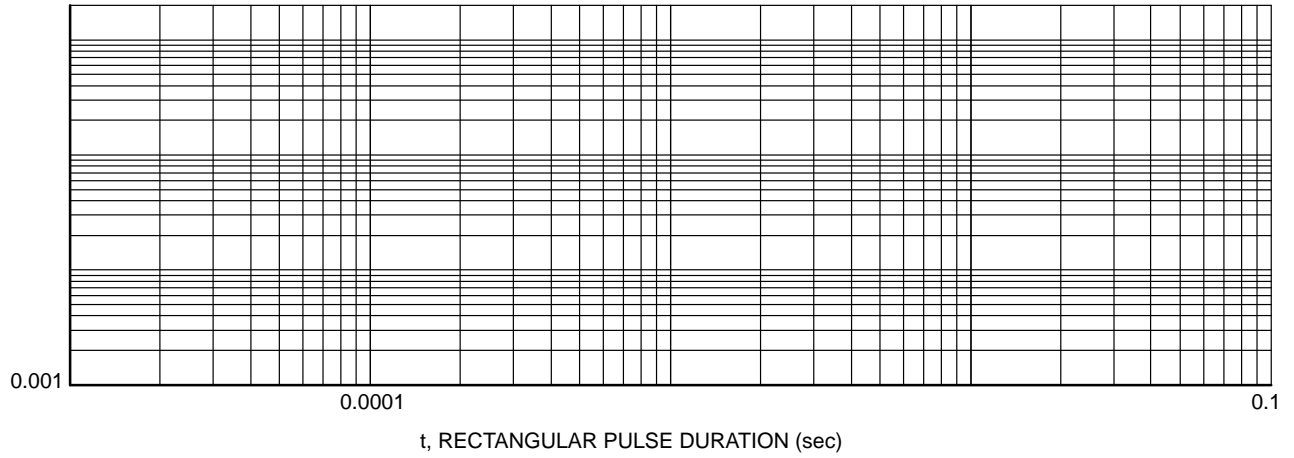


Figure 13. Junction-to-Ambient Transient Thermal Response Curve

D²PAK7 (TO-263-7L HV)
CASE 418BJ
ISSUE B

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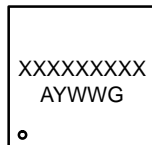
A

c2

H

C

**GENERIC
MARKING DIAGRAM***



XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package

*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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