Silicon Carbide (SiC) MOSFET – 40 mohm, 1200 V, M1, D2PAK-7L

NVBG040N120SC1

- Typ. $R_{DS(on)}$ = 40 mΩ
- Ultra Low Gate Charge (Typ. $Q_{G(tot)}$ = 106 nC)
- Low Effective Output Capacitance (Typ. C_{oss} = 139 pF)
- 100% Avalanche Tested
- AEC−Q101 Qualified and PPAP Capable
- This Device is Halide Free and RoHS Compliant with exemption 7a, Pb−Free 2LI (on second level interconnection)

- Automotive On Board Charger
- Automotive DC-DC Converter for EV/HEV

Publication Order Number:

Thermal Resistance Junction−to−Case (Note 1)	$R_{\theta JC}$	0.42	°C/W
Thermal Resistance Junction−to−Ambient (Note 1)	$R_{\theta JA}$	40	°C/W

(T_J = 25°C unless otherwise stated)

Drain−to−Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 1 mA	1200			V
Drain−to−Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$	I_D = 1 mA, refer to 25°C		0.45		V/°C
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V, V_{DS} = 1200 V T_J = 25°C				

(T_J = 25°C unless otherwise stated) (continued)

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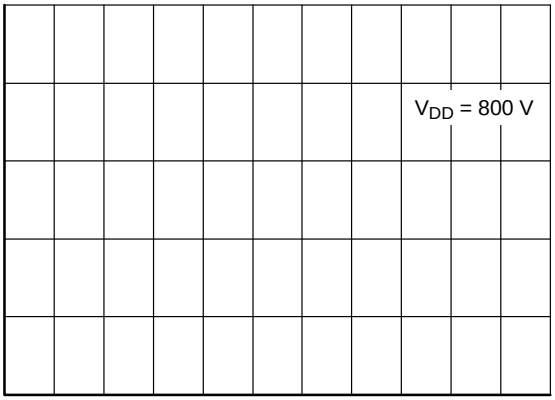
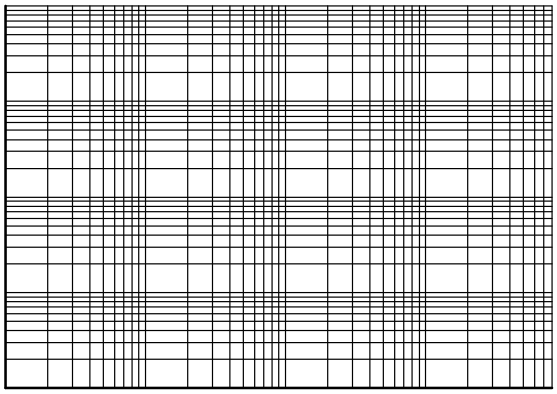
Reverse Recovery Time	t_{RR}	V_{GS} = −5/20 V, I_{SD} = 47 A, dI_S/dt = 1000 A/μs		24		ns
Reverse Recovery Charge	Q_{RR}			124.8		nC
Reverse Recovery Energy	E_{REC}			8.4		μJ
Peak Reverse Recovery Current	I_{RRM}			10.4		A
Charge Time	Ta			12.4		ns
Discharge Time	Tb			11.6		ns

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.

(continued)





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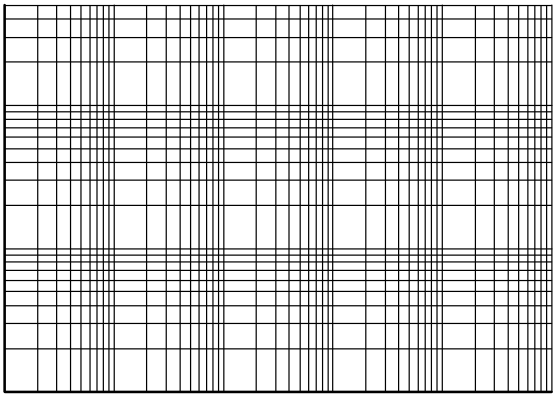

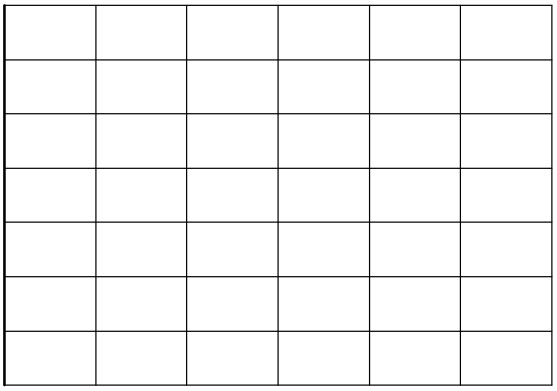

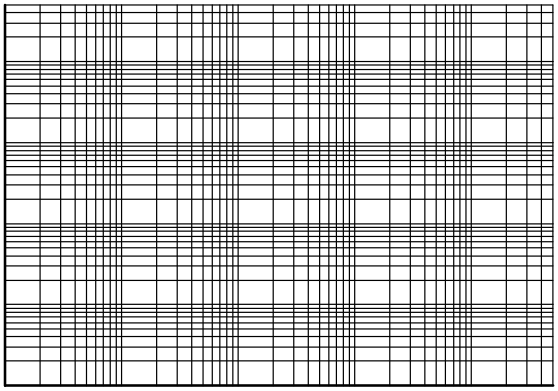

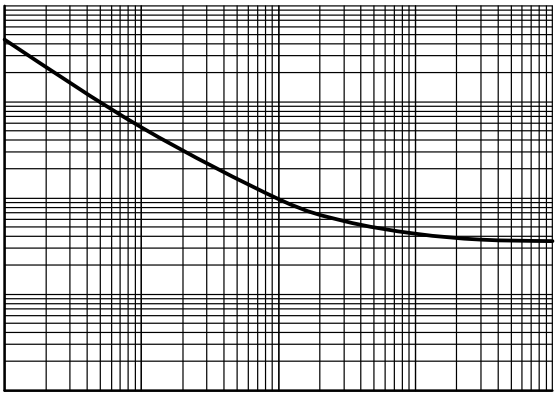

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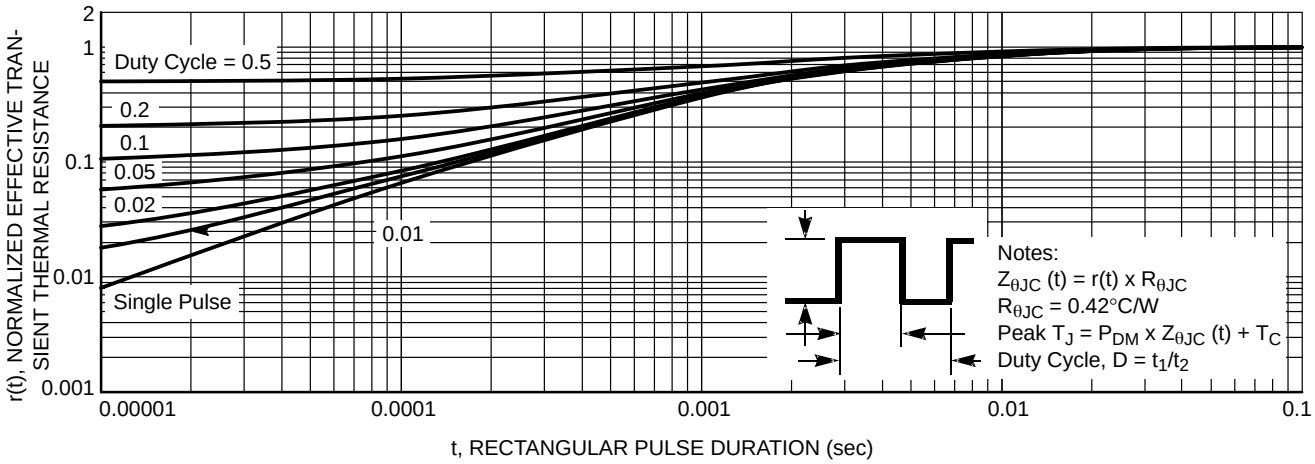
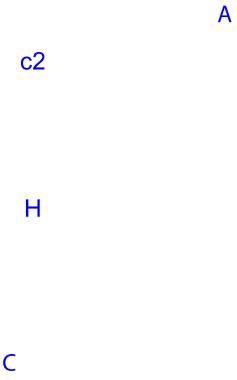

r(t), NORMALIZED EFFECTIVE TRANSIENT THERMAL RESISTANCE
2
1
0.1
0.01
0.001
Duty Cycle = 0.5
0.2
0.1
0.05
0.02
0.01
Single Pulse
0.00001
0.0001
0.001
0.01
0.1
t, RECTANGULAR PULSE DURATION (sec)
Notes:
$Z_{\theta JC}$ (t) = r(t) x $R_{\theta JC}$
$R_{\theta JC}$ = 0.42°C/W
Peak T_J = P_{DM} x $Z_{\theta JC}$ (t) + T_C
Duty Cycle, D = t_1/t_2

D^{2}PAK7 (TO−263−7L HV)
CASE 418BJ
ISSUE B

DATE 16 AUG 2019



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.