

Silicon Carbide (SiC) MOSFET – EliteSiC, 29 mohm, 1200 V, M3S, D2PAK-7L NTBG030N120M3S

- Typ. $R_{DS(on)} = 29 \text{ m}\Omega @ V_{GS} = 18 \text{ V}$
- Ultra Low Gate Charge ($Q_{G(tot)} = 107 \text{ nC}$)
- High Speed Switching with Low Capacitance ($C_{oss} = 106 \text{ pF}$)
- 100% Avalanche Tested
- This Device is Halide Free and RoHS Compliant with exemption 7a, Pb Free 2LI (on second level interconnection)
- Solar Inverters
- Electric Vehicle Charging Stations
- UPS (Uninterruptible Power Supplies)
- Energy Storage Systems
- SMPS (Switch Mode Power Supplies)

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

| | | | | | |
|---------------------------------------|--------------|--------------------------|---------|-----|---|
| Drain-to-Source Voltage | | V_{DSS} | 1200 | V | |
| Gate-to-Source Voltage | | V_{GS} | -10/+22 | V | |
| Continuous Drain Current (Notes 2, 3) | Steady State | $T_C = 25^\circ\text{C}$ | I_D | 77 | A |
| Power Dissipation (Note 2) | | | P_D | 348 | W |

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|---|-----------------|------|------|
| Junction-to-Case – Steady State (Note 2) | $R_{\theta JC}$ | 0.43 | °C/W |
| Junction-to-Ambient – Steady State (Notes 1, 2) | $R_{\theta JA}$ | 40 | |

| | | | |
|--|------------|----------------|---|
| Operation Values of Gate-to-Source Voltage | V_{GSop} | -5...-3 +18 | V |
|--|------------|----------------|---|

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.

($T_J = 25^\circ\text{C}$ unless otherwise specified)

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|---|-------------------|---|------|-----|---------|---------------|
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0\text{ V}, I_D = 1\text{ mA}$ | 1200 | - | - | V |
| Drain-to-Source Breakdown Voltage Temperature Coefficient | $V_{(BR)DSS}/T_J$ | $I_D = 1\text{ mA}$, referenced to 25°C (Note 7) | - | 0.3 | - | V/°C |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{GS} = 0\text{ V}, V_{DS} = 1200\text{ V}$ | - | - | 100 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = +22/-10\text{ V}, V_{DS} = 0\text{ V}$ | - | - | ± 1 | μA |

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|-------------------------------|--------------|---|------|-----|-----|------------|
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{GS} = V_{DS}, I_D = 15\text{ mA}$ | 2.04 | 2.4 | 4.4 | V |
| Drain-to-Source On Resistance | $r_{DS(on)}$ | $V_{GS} = 18\text{ V}, I_D = 30\text{ A}, T_J = 25^\circ\text{C}$ | - | 29 | 39 | m Ω |
| | | $V_{GS} = 18\text{ V}, I_D = 30\text{ A}, T_J = 175^\circ\text{C}$ (Note 7) | - | 58 | - | |
| Forward Transconductance | g_{FS} | $V_{DS} = 10\text{ V}, I_D = 30\text{ A}$ (Note 7) | - | 30 | - | S |

| | | | | | | |
|------------------------------|--------------|--|---|------|---|----|
| Input Capacitance | C_{ISS} | $V_{GS} = 0\text{ V}, f = 1\text{ MHz}, V_{DS} = 800\text{ V}$ | - | 2430 | - | pF |
| Output Capacitance | C_{OSS} | | - | 106 | - | |
| Reverse Transfer Capacitance | C_{RSS} | | - | 9.4 | - | |
| Total Gate Charge | $Q_{G(TOT)}$ | $V_{GS} = -3/18\text{ V}, V_{DS} = 800\text{ V},$ $I_D = 30\text{ A}$ | | | | |

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

DATE 16 AUG 2019

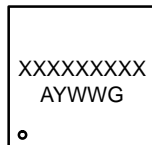
A

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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