Silicon Carbide (SiC) Module – 30 mohm SiC M3S MOSFET, 1200 V, 4-PACK Full Bridge Topology, F1 Package

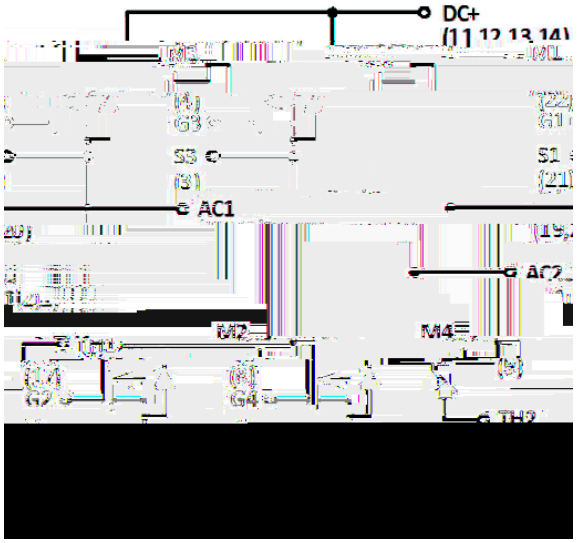
Product Preview

NXH030F120M3F1PTG

The NXH030F120M3F1PTG is a power module containing 30 mΩ/1200 V SiC MOSFET full−bridge and a thermistor with Al_2O_3 DBC in an F1 package.

- 30 mΩ / 1200 V M3S SiC MOSFET Full−Bridge
- Al_2O_3 DBC
- Thermistor
- Options with Pre−Applied Thermal Interface Material (TIM) and without Pre−Applied TIM
- Options with Solderable Pins and Press−Fit Pins
- These Devices are Pb−Free, Halide Free and are RoHS Compliant

- Solar Inverter
- Uninterruptible Power Supplies
- Electric Vehicle Charging Stations
- Industrial Power



Publication Order Number:

1	AC2	Center point of full bridge 2
2	AC2	Center point of full bridge 2
3	S3	M3 Kelvin Source (High Side switch)
4	G3	M3 Gate (High Side switch)
5	TH1	Thermistor Connection 1
6	TH2	Thermistor Connection 2
7	S4	M4 Kelvin Source (Low side switch)
8	G4	M4 Gate (Low side switch)
9	DC−2	DC Negative Bus connection
10	DC−2	DC Negative Bus connection
11	DC+	DC Positive Bus connection
12	DC+	DC Positive Bus connection
13	DC+	DC Positive Bus connection
14	DC+	DC Positive Bus connection
15	DC−1	DC Negative Bus connection
16	DC−1	DC Negative Bus connection
17	G2	M2 Gate (Low side switch)
18	S2	M2 Kelvin Source (Low side switch)
19	AC1	Center point of full bridge 1
20	AC1	Center point of full bridge 1
21	S1	M1 Kelvin Source (High side switch)
22	G1	M1 Gate (High side switch)

Drain−Source Voltage	V_{DSS}	1200	V
Gate−Source Voltage	V_{GS}	+22/−10	V
Continuous Drain Current @ T_C = 80°C (T_J = 175°C)	I_D	38	A
Pulsed Drain Current (T_J = 175°C)	I_{Dpulse}	115	A
Maximum Power Dissipation (T_J = 175°C)	P_{tot}	100	W
Minimum Operating Junction Temperature	T_{JMIN}	−40	°C
Maximum Operating Junction Temperature	T_{JMAX}	175	°C

Storage Temperature Range	T_{stg}	−40 to 150	°C

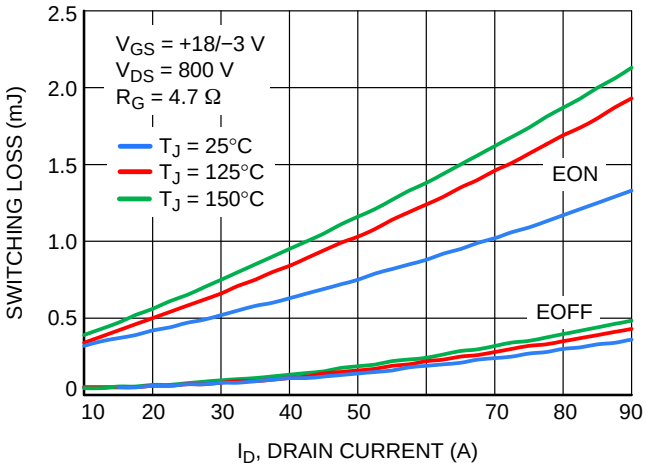
Isolation Test Voltage, t = 1 s, 60 Hz	V_{is}	4800	V_{RMS}
Creepage Distance		12.7	mm
CTI		600	
Substrate Ceramic Material		Al_2O_3	
Substrate Ceramic Material Thickness		0.32	mm

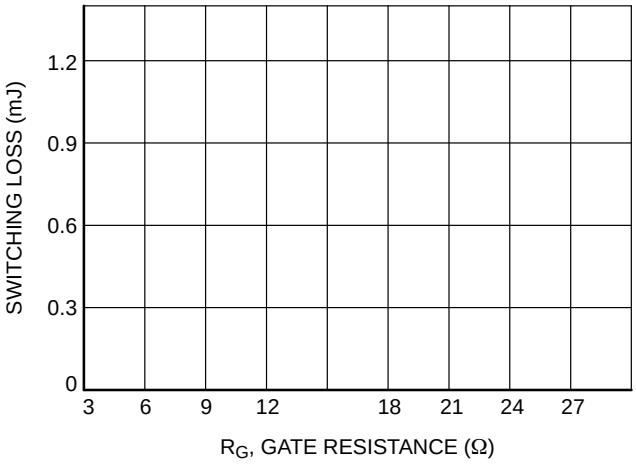
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

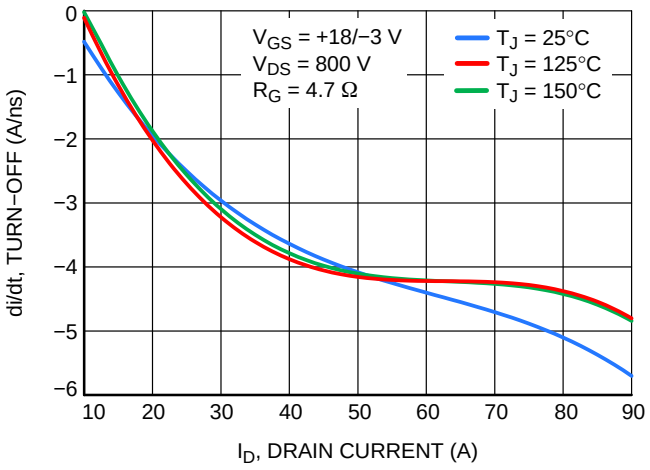
(continued)(T_J = 25 °C unless otherwise noted)

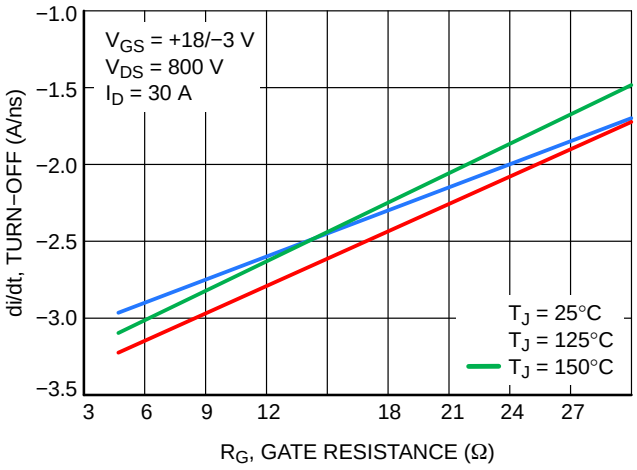
Nominal Resistance	T = 25°C	R_{25}	–	5	–	kΩ
	T = 100°C	R_{100}	–	493	–	Ω
	T = 150°C	R_{150}	–	159.5	–	Ω
Deviation of R_{100}	T = 100°C	ΔR/R	−5	–	5	%
Power Dissipation − Recommended Limit	0.15 mA, Non−self					



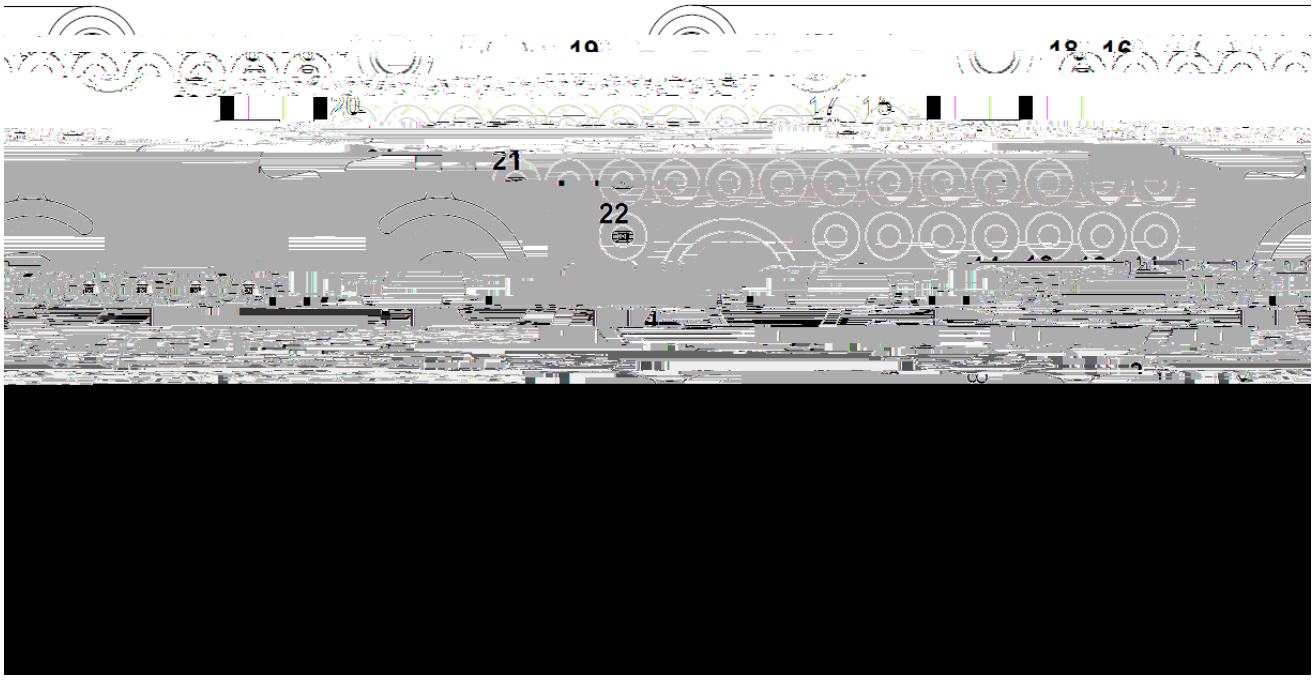


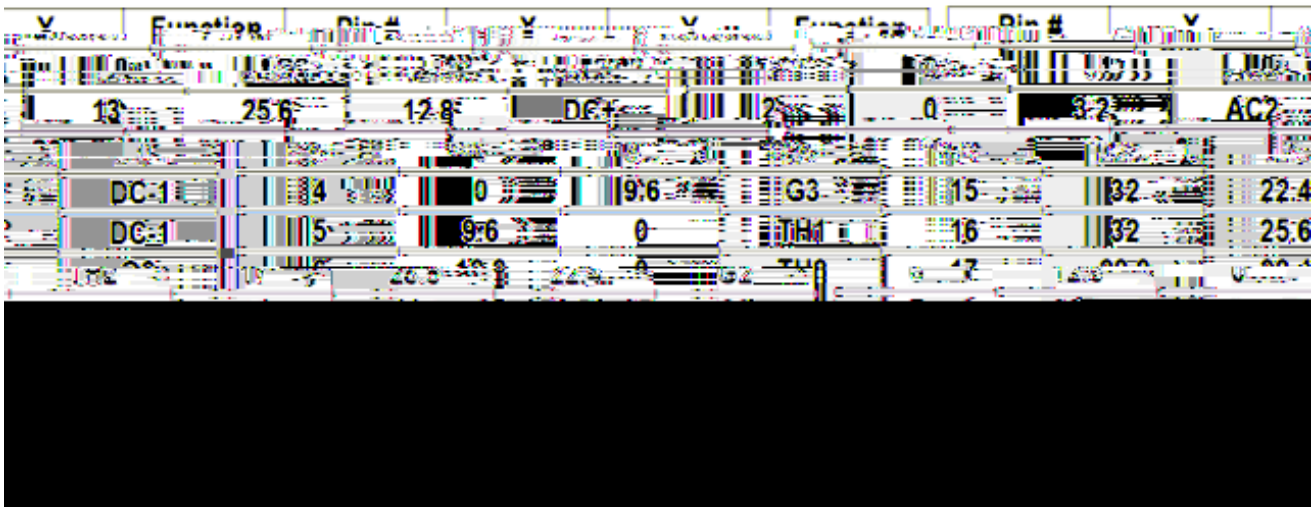
M1/M2 SIC MOSFET CHARACTERISTIC





1	0.0008598	0.0006888
2	0.0060273	0.0001577
3	0.0131590	0.0002630
4	0.0651160	0.0013257
5	0.1977800	0.0040903
6	0.3716200	0.0208140
7	0.1618000	0.5875200





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