

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- ☒ Surface-mounted package
- ☒ Low Thermal Resistance

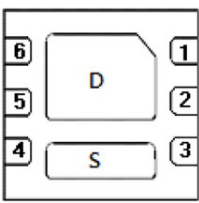
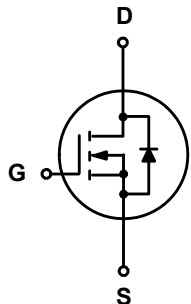
1.2 Applications

- ☒ Motor drivers
- ☒ DC - DC Converter

1.3 Quick reference

- ☒ $BV \leq 30\text{ V}$
- ☒ $R_{DS(ON)} \leq 10\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- ☒ $P_{tot} \leq 20.8\text{ W}$
- ☒ $R_{DS(ON)} \leq 15\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$
- ☒ $I_D \leq 34\text{ A}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,5,6	Drain	 Bottom View DFN2X2-6L	
3	Gate		
4	Source		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V _{DS}	Drain-Source Voltage	T _C = 25 °C	30	-	V
V _{GS}	Gate-Source Voltage	T _C = 25 °C	-	± 20	V
I _D *	Drain Current	T _C = 25 °C, V _{GS} = 10 V	-	34	A
I _{DM} *,**,***	Pulsed Source Current	T _C = 25 °C, V _{GS} = 10 V	-	80	A
P _{tot} *	Total Power Dissipation	T _C = 25 °C	-	20.8	W
T _{stg}	Storage Temperature		- 55	150	°C
T _J	Junction Temperature		-	150	°C
I _S	Diode Forward Current	T _C = 25 °C	-	34	A
R _{θJA} *	Thermal Resistance- Junction to Ambient		-	62.5	°C / W
R _{θJC} *	Thermal Resistance- Junction to Case		-	6	

Notes :

* Surface Mounted on 1 in² pad area, t ≤ 10 sec

** Pulse width ≤ 10 μs, duty cycle ≤ 1 %

*** limited by bonding wire

4. Marking Information

Product Name	Marking
N030N03N2	030N03 YWWXXX YWW: Date Code

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
N030N03N2	DFN2*2 -6L				

6. Electrical Characteristics (T_A = 25 °C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 μA	30	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _{DS} = 250 μA	0.8	-	1.6	V
I _{DSS}	Zero Gate Voltage Source Current	V _{DS} = 24, V _{GS} = 0 V	-	-	1	μA
		T _J = 85 °C	-	-	30	μA
I _{GSS}	Gate Leakage Current	V _{GS} = ± 20 V, V _{DS} = 0 V	-	-	± 100	nA
R _{DS(ON)} ^a	Drain-Source On-State Resistance	V _{GS} = 10 V, I _D = 20A	-	8.8	10	m Ω
		V _{GS} = 4.5 V, I _D = 10A	-	12	15	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} = 20 A, V _{GS} = 0 V	-	-	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} = 20 A, dI _{SD} /dt = 100 A/μs	-	16	-	nS
Q _{rr}	Reverse Recovery Charge		-	7	-	nC
Dynamic Characteristics ^b						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} = 15 V Frequency = 1 MHz	-	918	-	pF
C _{oss}	Output Capacitance		-	114	-	
C _{rss}	Reverse Transfer Capacitance		-	101	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} = 15 V, V _{GEN} = 10 V, R _G = 4.5 Ω, R _L = 0.75Ω, I _D = 20 A	-	7	-	nS
t _r	Turn-on Rise Time		-	55	-	
t _{d(off)}	Turn-off Delay Time		-	19	-	
t _f	Turn-off Fall Time		-	23	-	
Gate Charge Characteristics ^b						
Q _g	Total Gate Charge	V _{GS} = 10 V, V _{DS} = 15 V, I _{DS} = 20 A	-	20	-	nC
Q _{gs}	Gate-Source Charge		-	3.6	-	
Q _{gd}	Gate-Drain Charge		-	3.9	-	

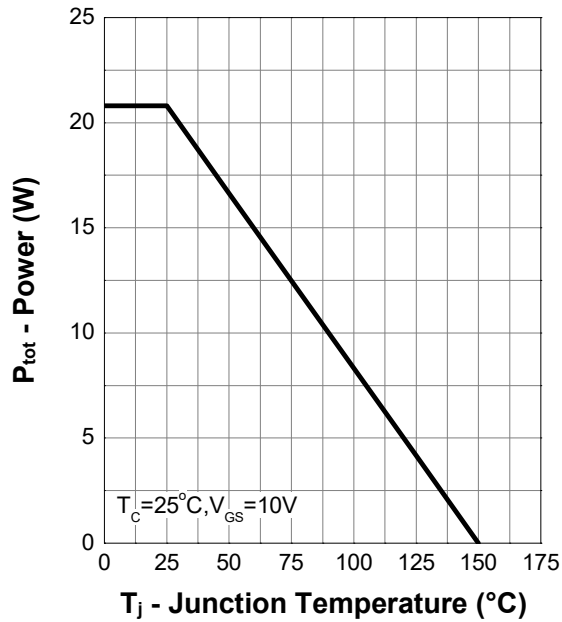
Notes :

a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2 %

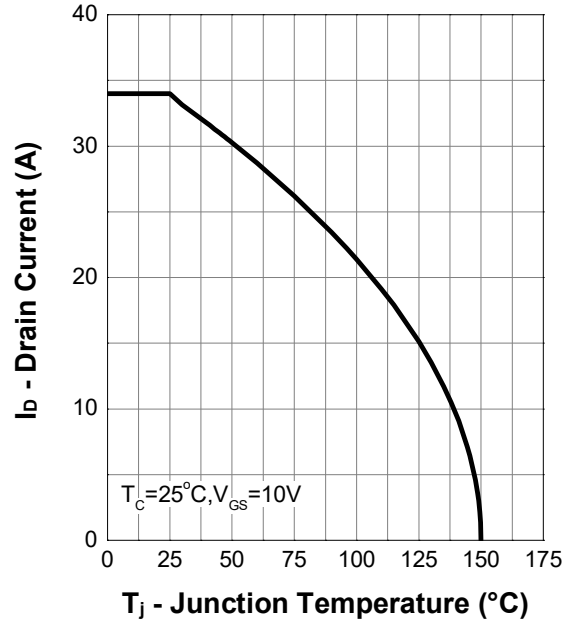
b : Guaranteed by design, not subject to production testing

7. Typical Characteristics (Cont.)

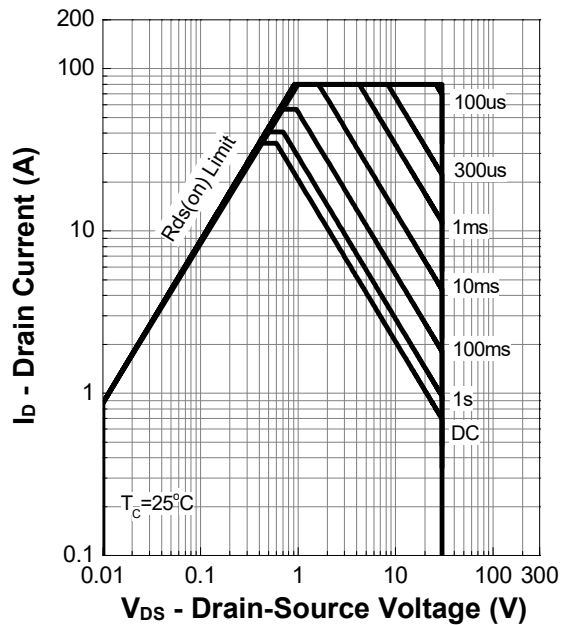
Power Capability



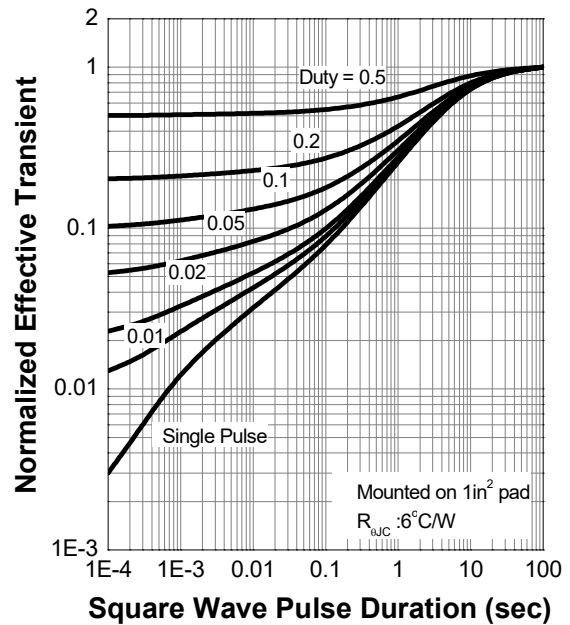
Current Capability



Safe Operation Area

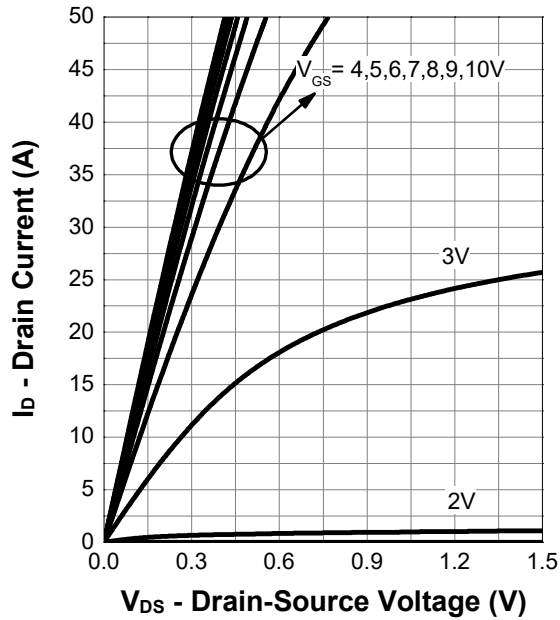


Transient Thermal Impedance

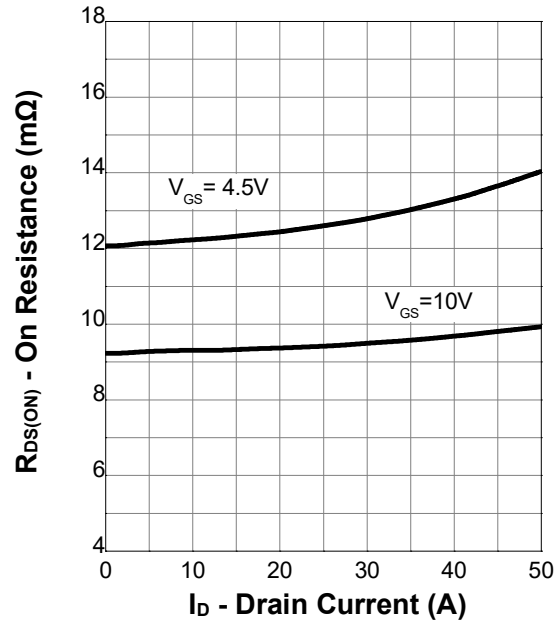


7. Typical Characteristics (Cont.)

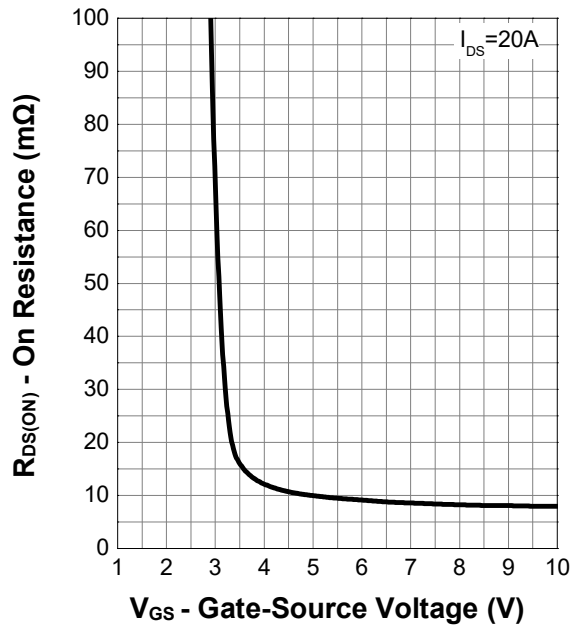
Output Characteristics



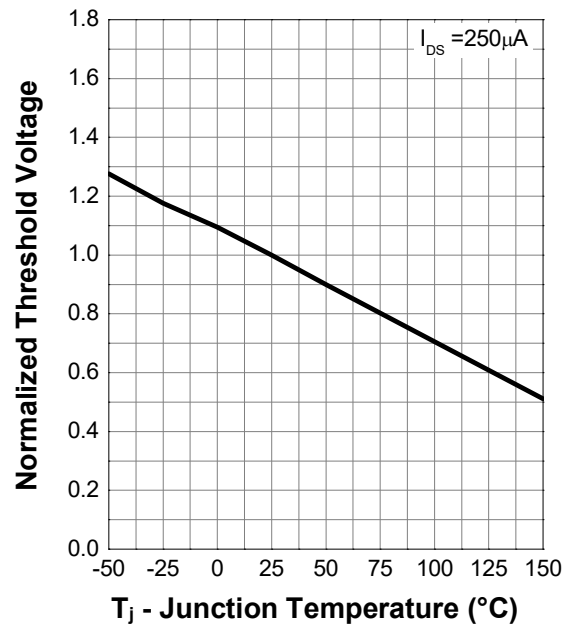
On Resistance



Transfer Characteristics

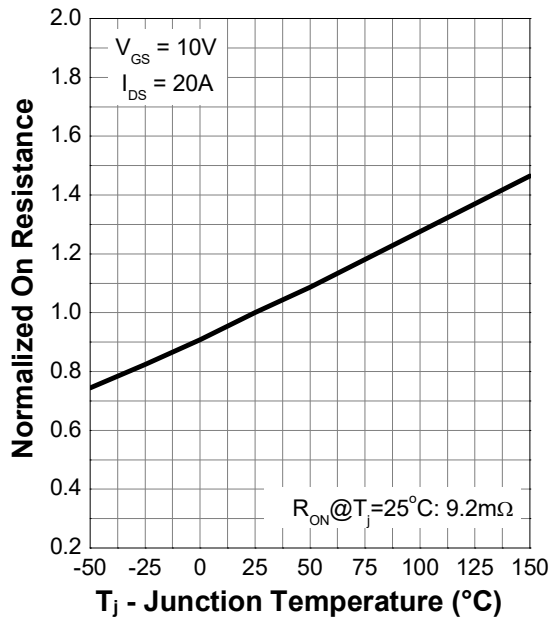


Normalized Threshold Voltage

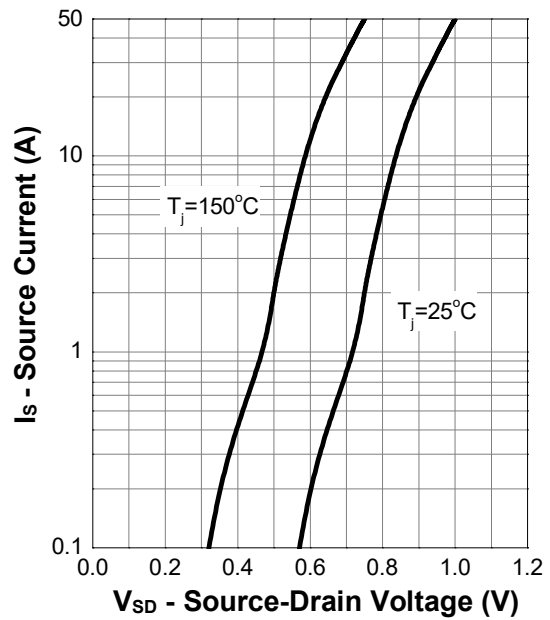


7. Typical Characteristics (Cont.)

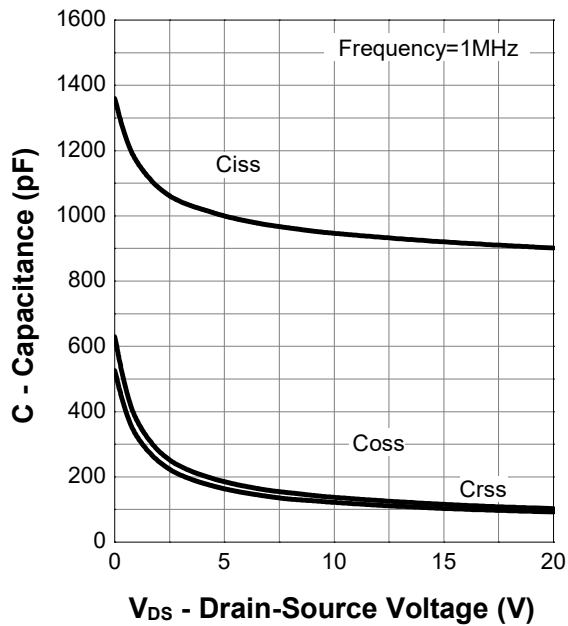
Normalized On Resistance



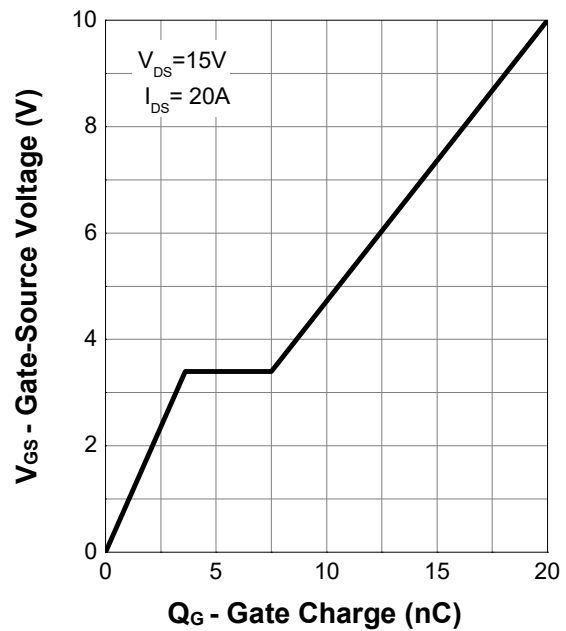
Diode Forward Current



Capacitance

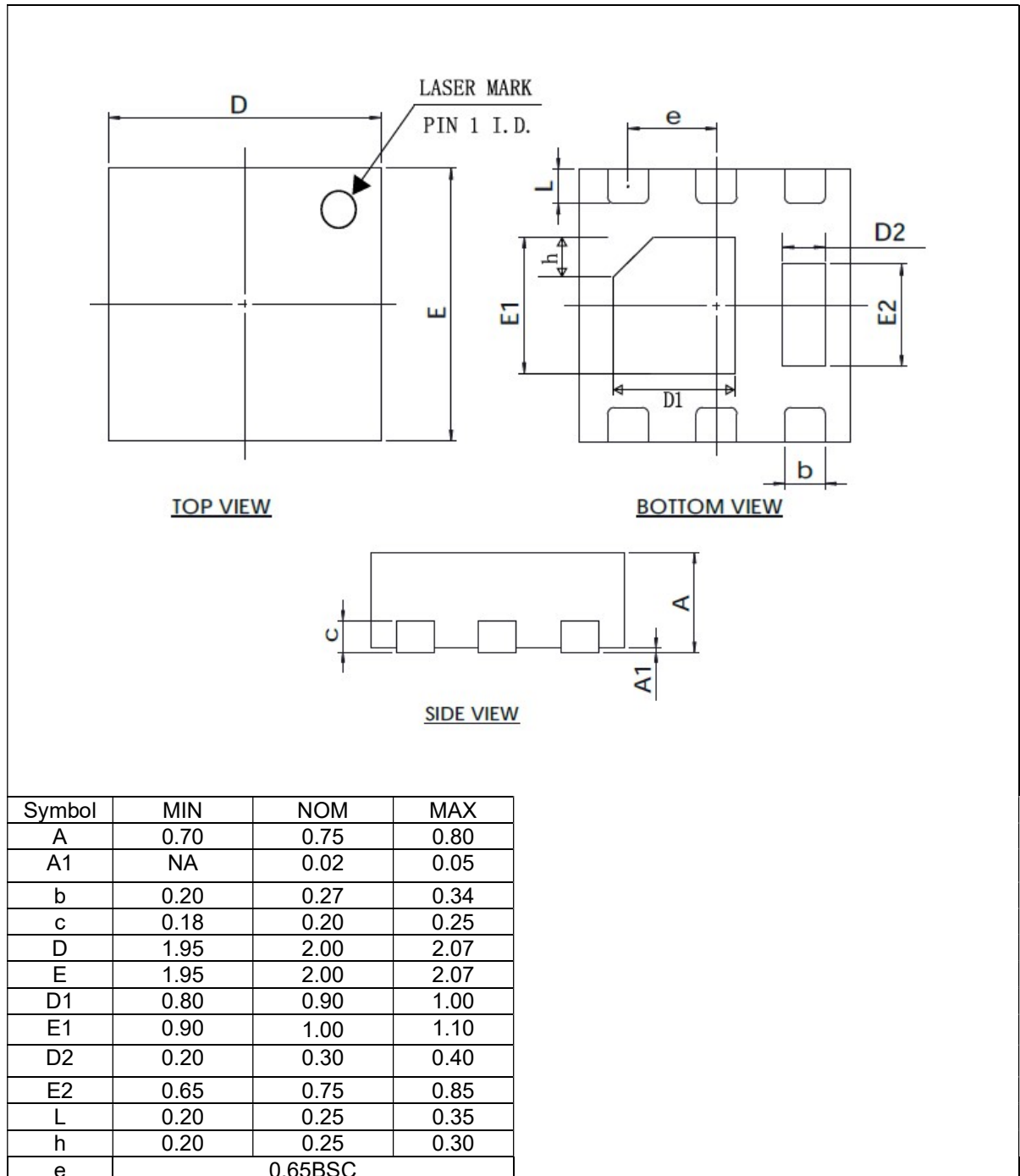


Gate Charge



8.Package Dimensions

DFN2x2-6L



NOTICE

JSKD reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSKD does not assume any liability arising out of the application or use of any product described herein.