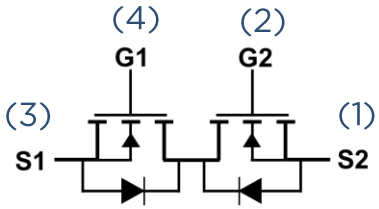
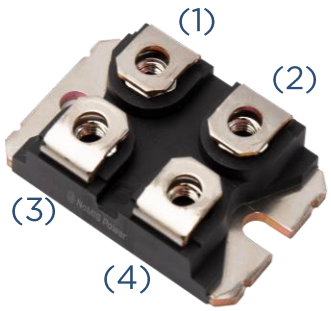
NCD3T400MP330S
3300 V Silicon Carbide Bi-Directional MOSFET (CD-BiFET)

V_{DS}	I_D	$R_{DS(on)}$	Package
3300 V	20 A	400 mΩ	SOT-227

COMING SOON - 200 mΩ CD-BiFET





Features
- State-of-the-art SiC MOSFET technology
- Reliable gate oxide process
- 100% avalanche tested
- Dual gate control
- Electrically isolated baseplate

Benefits
- Higher system efficiency
- Reduced cooling requirements
- Increased power density
- Increased system switching frequency
- Enhanced system reliability
- Reduced total harmonic distortion

Applications
- Solid-state circuit breakers
- Matrix (AC/AC) converters
- Current source converters
- Energy storage systems
- Solid-state power controllers
- Uninterruptible power supplies

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	Note
Drain-Source Voltage	$V_{(BR)S2S1}$	T_C = 25 °C	3300	-	-	V	
Zero Gate Voltage Drain Current	I_{S2S1}	V_{S2S1} = 3300 V, V_{G1S1} = 0 V	-	1	100	µA	
Gate-Source Voltage	$V_{GS(max)}$		-10	-	25	V	
	$V_{GS,op}$	Recommended Operation	-	-5/+20	-		
Gate Threshold Voltage	$V_{G1S1(th)}$	V_{G1S1} = V_{S2S1}, V_{G1S1} = 20 V, I_{S2} = 2.5 mA	2	2.64	3	V	Fig. 4
Drain-Source On-State Resistance	$R_{S2S1(on)}$	T_C = 25 °C	-	400	-	mΩ	Fig. 1
Continuous Drain Current	I_S	V_{G1S1} = 20 V, T_C = 25 °C	-	20	-	A	
Turn-On Switching Energy	E_{ON}	V_{S2} = 2000 V, I_{S2} = 15 A, V_{G1S1} = -5 / +20 V, $R_{G(ext)}$ = 10 Ω, L = 1.7 mH	-	1550	-	µJ	Fig. 3
Turn-Off Switching Energy	E_{OFF}		-	155	-		
Total Switching Energy	E_{TOT}		-	1705	-		

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Typical Performance

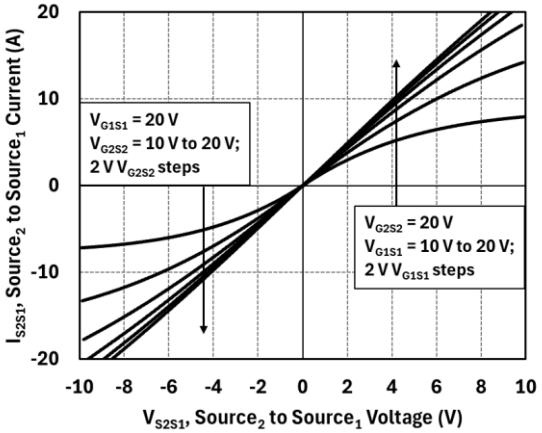

Figure 1: Forward and Reverse Output Characteristics: t_p < 200 µs, T_C = 25 °C

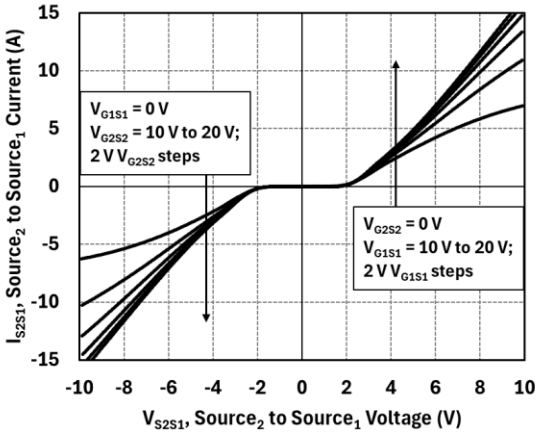

Figure 2: Forward and Reverse Output Characteristics: t_p < 200 µs, T_C = 25 °C

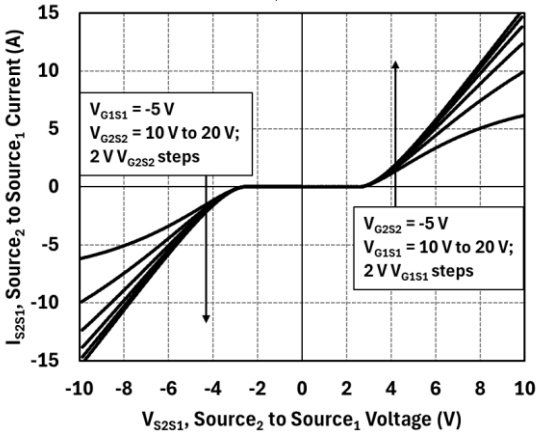

Figure 3: Forward and Reverse Output Characteristics: t_p < 200 µs, T_C = 25 °C

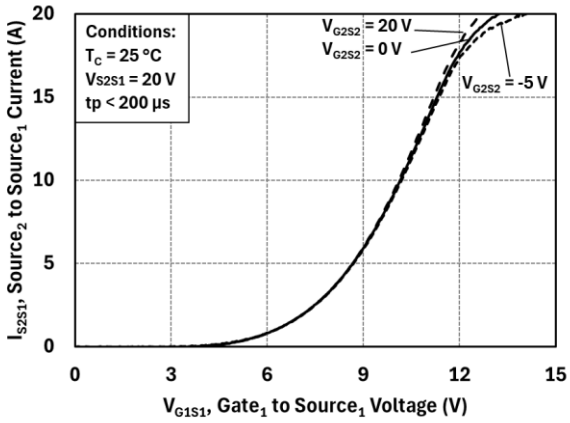

Figure 4: Transfer Characteristics

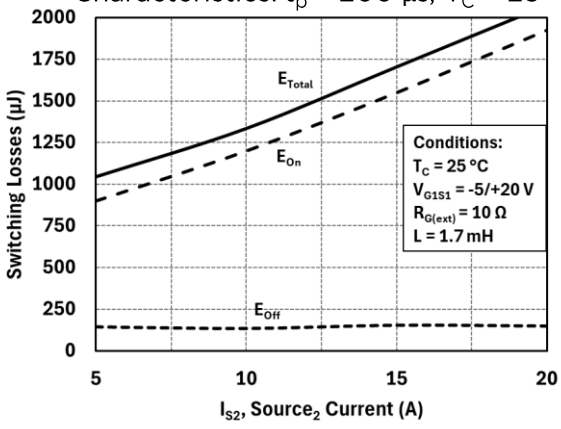

Figure 5: Switching Energy vs. Drain Current

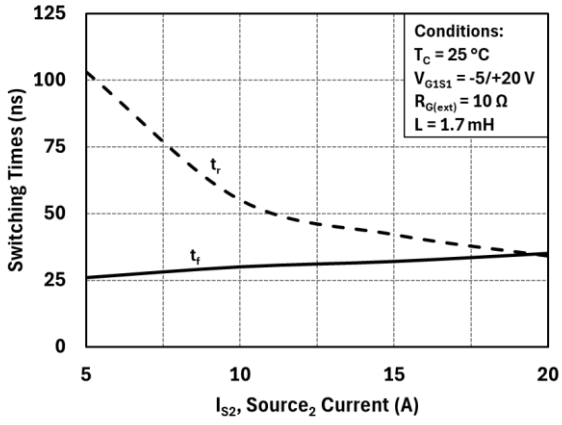

Figure 6: Switching Times Vs. Drain Current