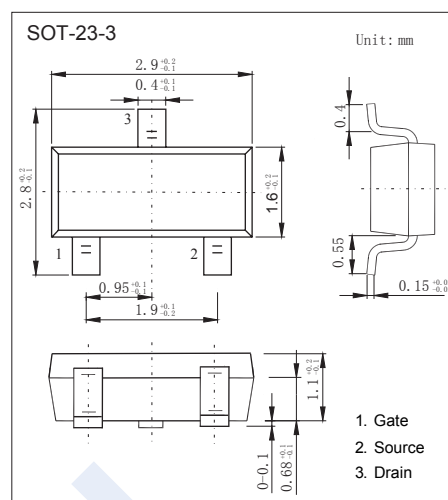


N-Channel Enhancement MOSFET

NTR4003N (KTR4003N)

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 0.56 A$ ($V_{GS} = \pm 20V$)
- $R_{DS(ON)} < 1.5 \Omega$ ($V_{GS} = 4V$)
- $R_{DS(ON)} < 2 \Omega$ ($V_{GS} = 2.5V$)

■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current ¹ Steady State	TA=25°C	ID	0.5	A
	TA=85°C		0.37	
Continuous Drain Current ¹ t < 10 s	TA=25°C		0.56	
	TA=85°C		0.4	
Pulsed Drain Current tp = 10 us		IDM	1.7	
Power Dissipation ¹ Steady State		PD	0.69	W
Power Dissipation ¹ t < 5 s			0.83	
Thermal Resistance.Junction- to-Ambient– Steady State ¹		RthJA	180	°C/W
Thermal Resistance.Junction- to-Ambient– t < 10 s ¹			150	
Thermal Resistance.Junction- to-Ambient– Steady State ²			300	
Lead Temperature for Soldering Purposes (1/8" from case for 10 s)		TL	260	°C
Junction Temperature		TJ	150	
Storage Temperature Range		Tstg	-55 to 150	

Notes:1. Surface-mounted on FR4 board using 1 in sq pad size
(Cu area = 1.127 in sq [1 oz] including traces).

2. Surface-mounted on FR4 board using the minimum recommended pad size.

N-Channel Enhancement MOSFET

NTR4003N (KTR4003N)

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =100 μA, V _{GS} =0V	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V, T _J =25°C			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±1	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	0.8		1.4	V
Drain-to-Source Breakdown Voltage Temperature Coefficient	V _{DSS} /T _J			40		mV/°C
Negative Threshold Temperature Coefficient	V _{GS(th)} /T _J			3.4		
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4V, I _D =10mA			1.5	Ω
		V _{GS} =2.5V, I _D =10mA			2	
Forward Transconductance	g _{FS}	V _{DS} =3V, I _D =10mA		0.33		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =5V, f=1MHz		21		pF
Output Capacitance	C _{oss}			19.7		
Reverse Transfer Capacitance	C _{rss}			8.1		
Total Gate Charge	Q _{g(TOT)}	V _{GS} =5V, V _{DS} =24V, I _D =0.1A		1.15		nC
Threshold Gate Charge	Q _{g(TH)}			0.15		
Gate Source Charge	Q _{gs}			0.32		
Gate Drain Charge	Q _{gd}			0.23		
Turn-On DelayTime	t _{d(on)}	V _{GS} =4.5V, V _{DS} =5V, I _D =0.1A, R _{GEN} =50 Ω		16.7		ns
Turn-On Rise Time	t _r			47.9		
Turn-Off DelayTime	t _{d(off)}			65.1		
Turn-Off Fall Time	t _f			64.2		
Body Diode Reverse Recovery Time	t _{rr}	I _S =10mA, dI _S /dt=8A/μs		14		
Maximum Body-Diode Continuous Current	I _S				1	A
Diode Forward Voltage	V _{SD}	I _S =10mA, V _{GS} =0V	T _J =25°C		0.7	V
			T _J =125°C	0.45		

■ Marking

Marking	TR8M.
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N-Channel Enhancement MOSFET

NTR4003N (KTR4003N)

■ Typical Characteristics

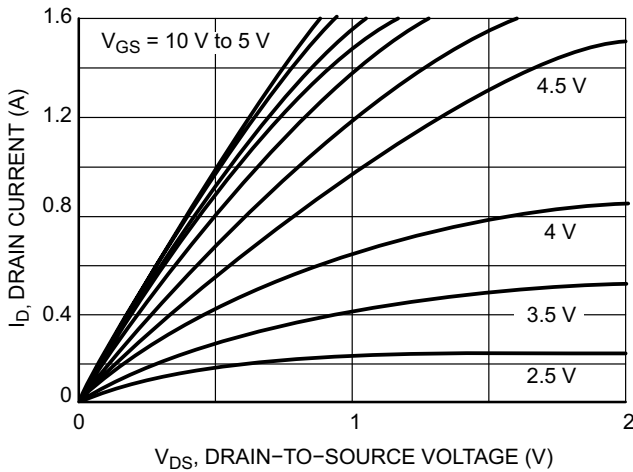


Figure 1. On-Region Characteristics

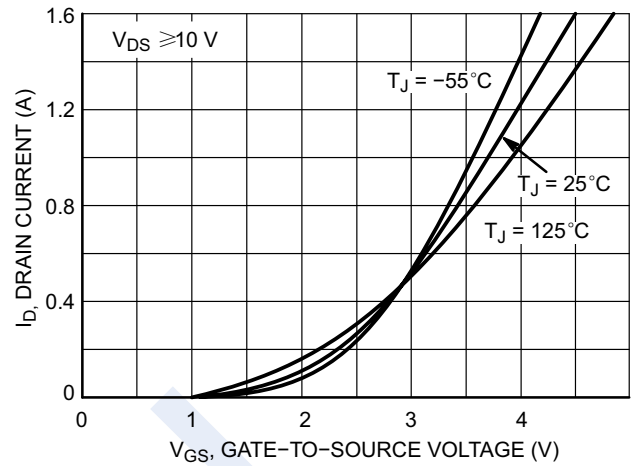


Figure 2. Transfer Characteristics

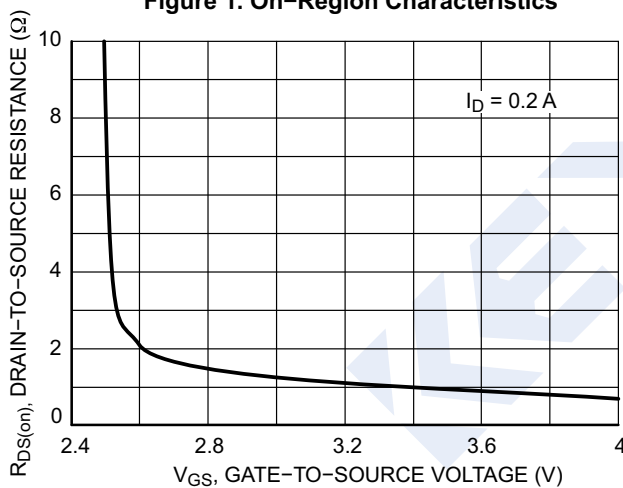


Figure 3. On-Resistance vs. Gate-to-Source Voltage

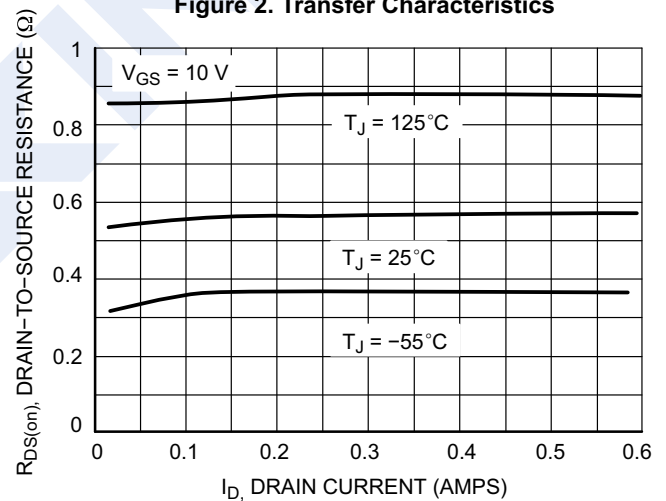


Figure 4. On-Resistance vs. Drain Current and Temperature

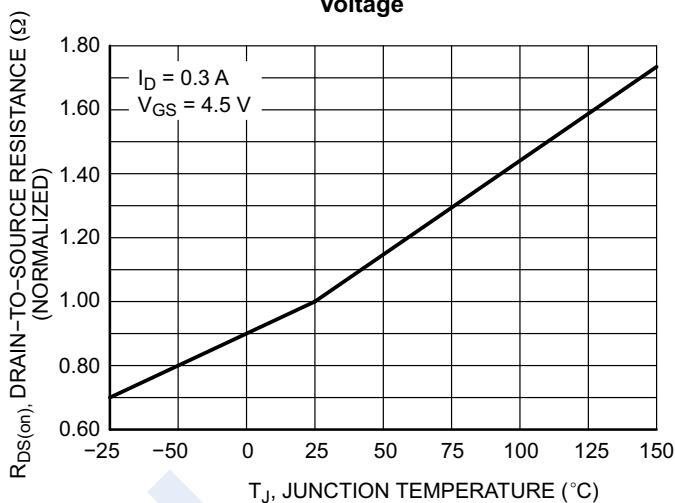


Figure 5. On-Resistance Variation with Temperature

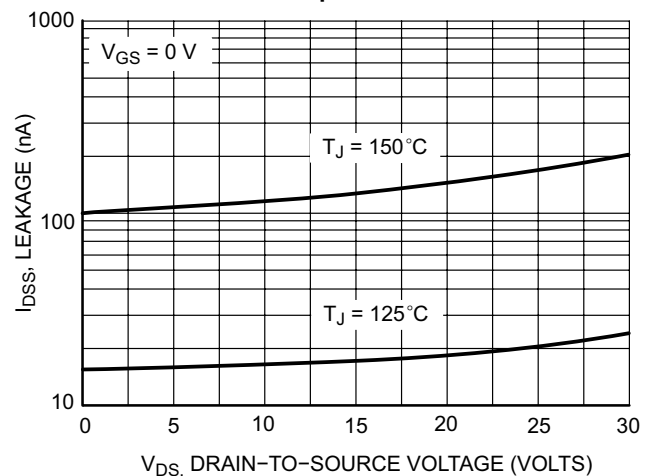


Figure 6. Drain-to-Source Leakage Current vs. Voltage

N-Channel Enhancement MOSFET

NTR4003N (KTR4003N)

■ Typical Characteristics

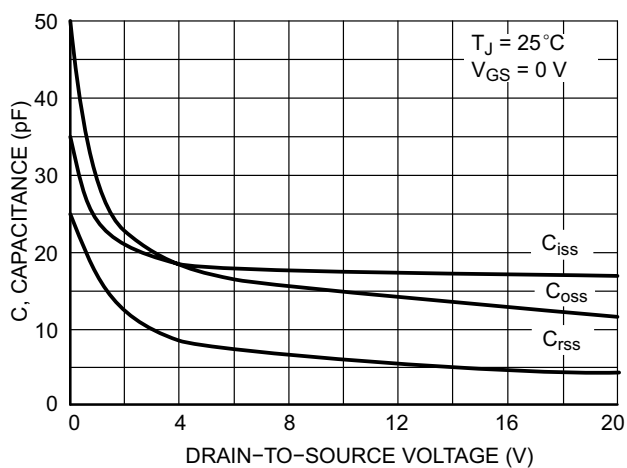


Figure 7. Capacitance Variation

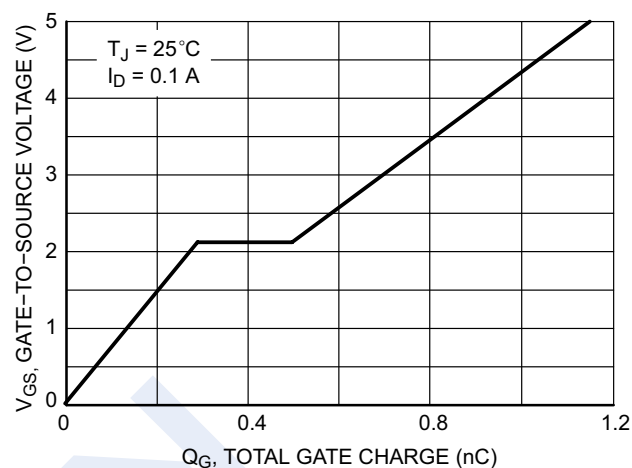


Figure 8. Gate-to-Source & Drain-to-Source Voltage vs. Total Charge

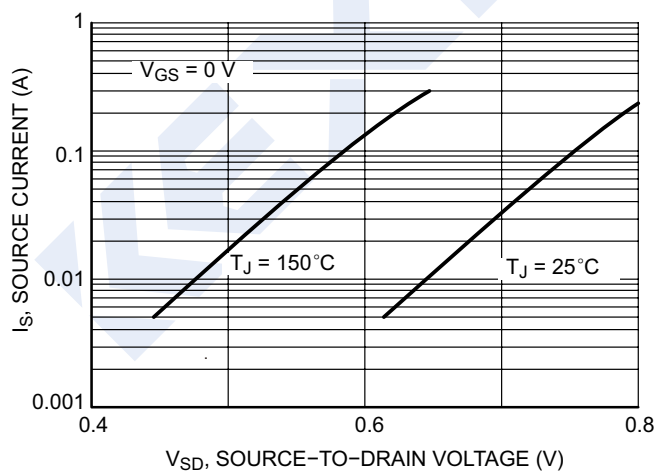


Figure 9. Diode Forward Voltage vs. Current