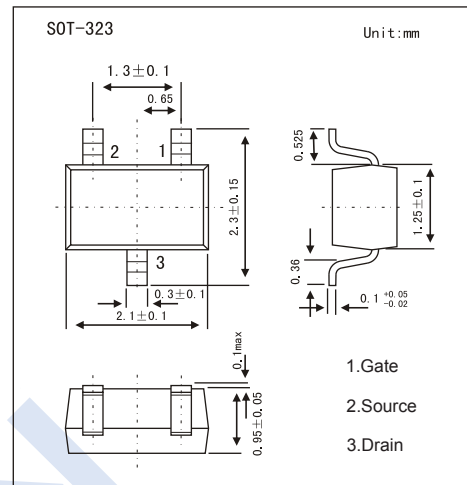
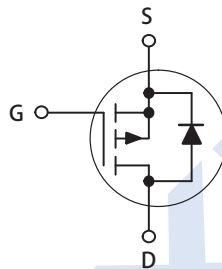


P-Channel MOSFET

NTS4101P

■ Features

- V_{DS} -20V
- I_D -1.37A
- $R_{DS(ON)}$ (at $V_{GS} = -4.5V$) 83m Ω (Typ.)
- $R_{DS(ON)}$ (at $V_{GS} = -3.6V$) 88m Ω (Typ.)
- $R_{DS(ON)}$ (at $V_{GS} = -2.5V$) 104m Ω (Typ.)

■ Absolute Maximum Ratings ($T_J = 25^\circ\text{C}$ unless otherwise noted.)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltage		V _{GS}	±8	
Continuous Drain Current	T _A =25°C	I _D	-1.37	A
	T _A =70°C		-0.62	
Pulsed Drain Current (Note 1)	t _p = 10μs	I _{DM}	-4	
Source Current (Body Diode), Continuous		I _S	-0.5	
Power Dissipation (Note 1)	T _A =25°C	P _D	0.329	W
Thermal Resistance, Junction- to-Ambient (Note 1)		R _{θJA}	380	°C/W
Junction Temperature		T _J	150	°C
Storage Temperature Range		T _{stg}	-55 to 150	

Note 1. Surface-mounted on FR4 board using 1 in sq pad size.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = -250μA, V _{GS} = 0V	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
		V _{DS} = -16V, V _{GS} = 0V, T _J = 70℃			-5	
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.45	-0.64	-1.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -1.0A		83	120	mΩ
		V _{GS} = -3.6V, I _D = -0.7A		88	130	
		V _{GS} = -2.5V, I _D = -0.3A		104	160	
Forward Transconductance	g _{FS}	V _{DS} = -5V, I _D = -1.3A		5.2		S
CHARGES AND CAPACITANCES						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} = -20V, f = 1MHz		603	840	pF
Output Capacitance	C _{oss}			90	125	
Reverse Transfer Capacitance	C _{rss}			62	85	
Total Gate Charge	Q _{g(TOT)}	V _{DS} = -4.5V, I _D = -1.0A V _{GS} = -4.5V		6.4	9.0	nC
	Q _{g(TH)}			0.7		
Gate Source Charge	Q _{gs}			1.0		
Gate Drain Charge	Q _{gd}			1.5		
SWITCHING CHARACTERISTICS (Note 3)						
Turn-On DelayTime	t _{d(on)}	V _{GS} = -4.5V, V _{DD} = -4.0V, I _D = 1.0A, R _G = 6.2Ω		6.2	12	ns
Turn-On Rise Time	t _r			14.9	25	
Turn-Off DelayTime	t _{d(off)}			26	40	
Turn-Off Fall Time	t _f			18	30	
DRAIN-SOURCE DIODE CHARACTERISTICS						
Body Diode Reverse Recovery Time	t _{rr}	I _S = -1.0A, V _{GS} = 0V, di/dt= 100A/μs		10.9	20	ns
Body Diode Reverse Recovery Charge	Q _{rr}			4.25		nC
Diode Forward Voltage	V _{SD}	I _S = -0.3 A, V _{GS} = 0V			-1.2	V

Notes 2. Pulse Test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

3. Switching characteristics are independent of operating junction temperatures.

■ Marking

Marking	TT
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P-Channel MOSFET

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■ Typical Characteristics

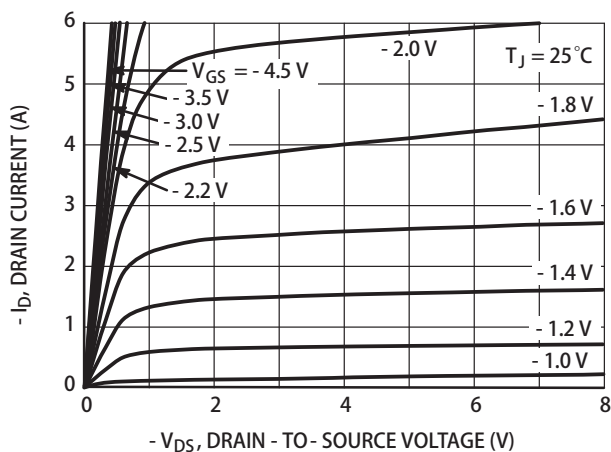


Figure 1. On - Region Characteristics

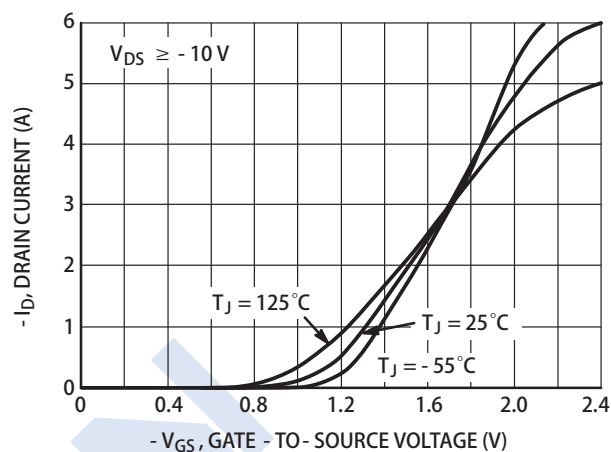


Figure 2. Transfer Characteristics

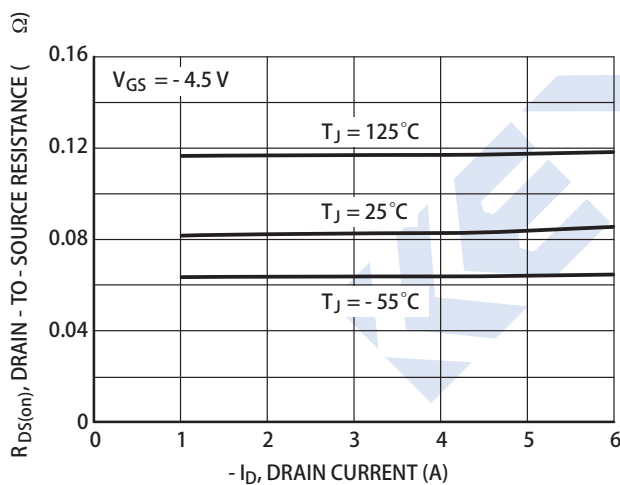


Figure 3. On - Resistance versus Drain Current and Temperature

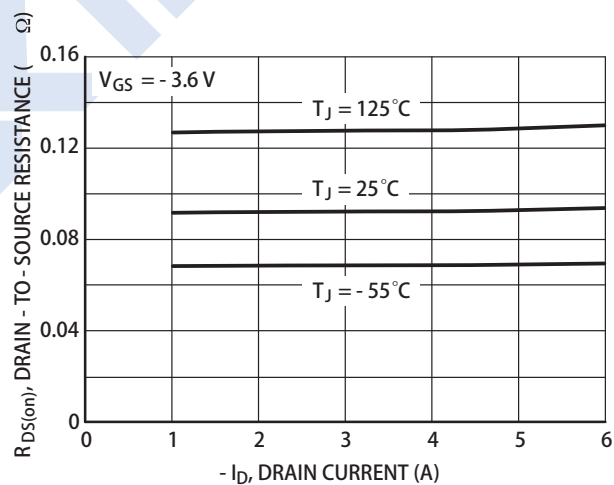


Figure 4. On - Resistance versus Drain Current and Temperature

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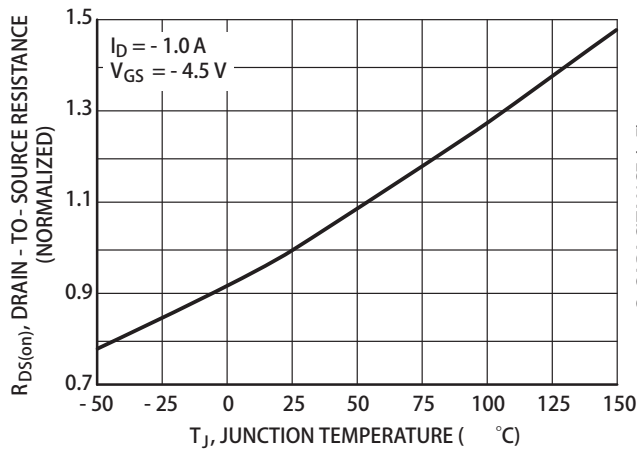


Figure 5. On - Resistance Variation with Temperature

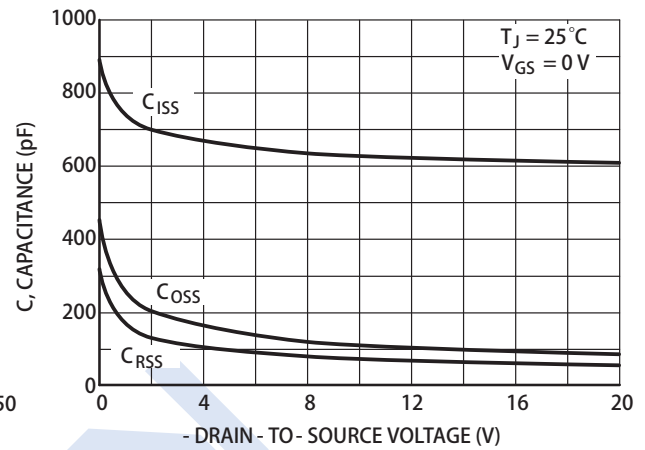


Figure 6. Capacitance Variation

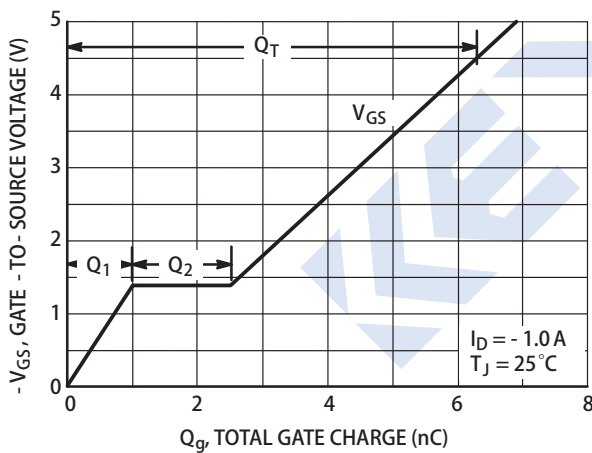


Figure 7. Gate - to- Source and Drain - to- Source Voltage versus Total Charge

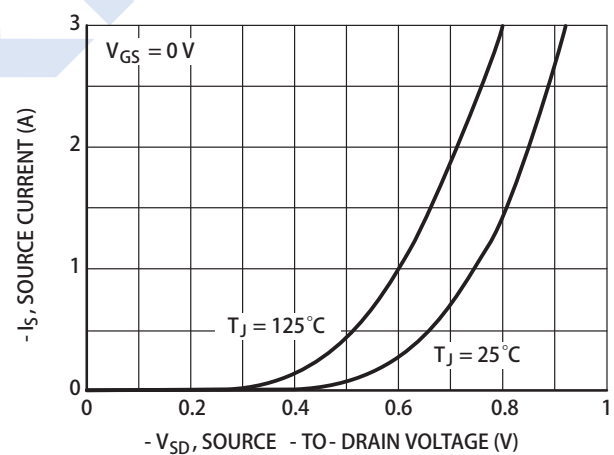


Figure 8. Diode Forward Voltage versus Current