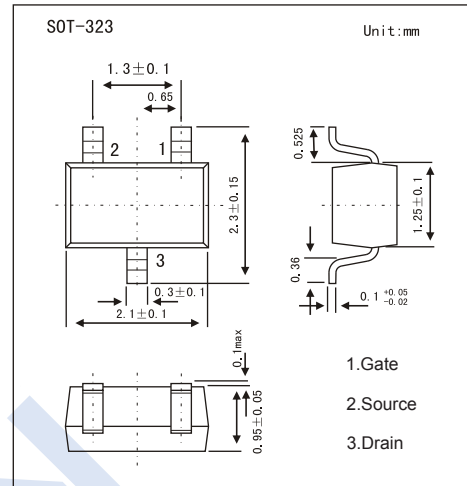
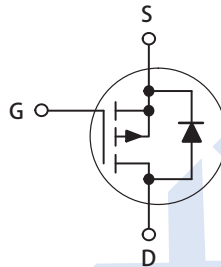


P-Channel MOSFET

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	I_D	$T_A = 25^\circ\text{C}$	-1.37	A
		$T_A = 70^\circ\text{C}$	-0.62	
Pulsed Drain Current (Note 1)	I_{DM}	-4		
Source Current (Body Diode), Continuous	I_S	-0.5		
Power Dissipation (Note 1)	P_D	0.329	W	
Thermal Resistance, Junction- to-Ambient (Note 1)	$R_{\theta JA}$	380	$^\circ\text{C}/\text{W}$	
Junction Temperature	T_J	150	$^\circ\text{C}$	
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°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°C			-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 Delay Time	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 Delay Time	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 ≤ 300 μs, duty cycle ≤ 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

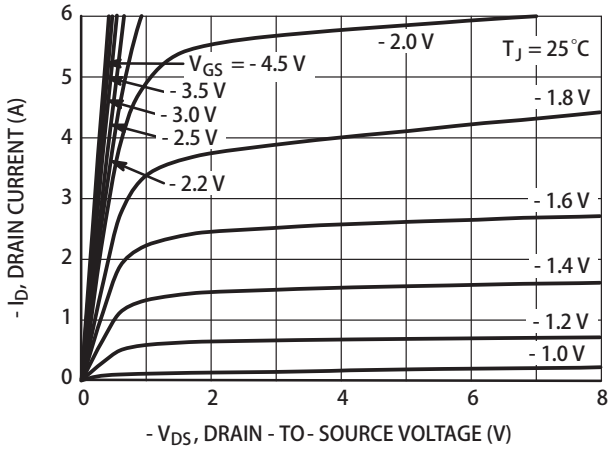


Figure 1. On - Region Characteristics

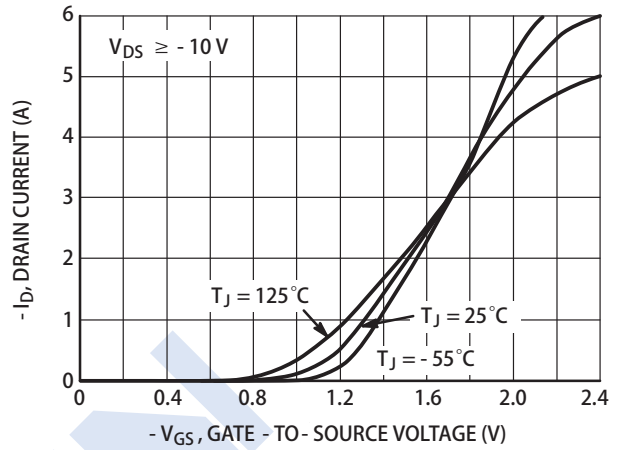


Figure 2. Transfer Characteristics

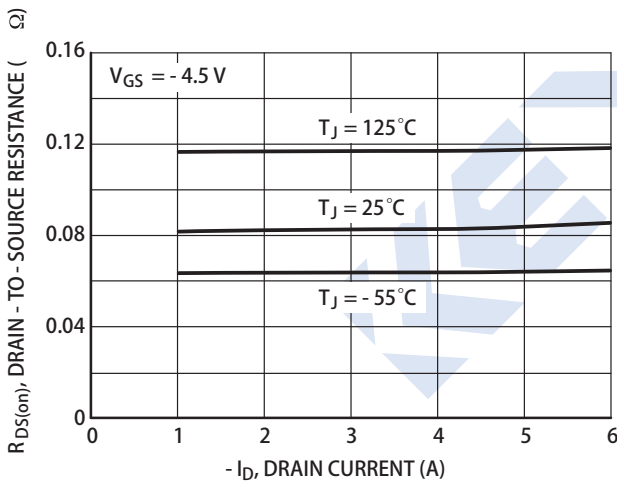


Figure 3. On - Resistance versus Drain Current and Temperature

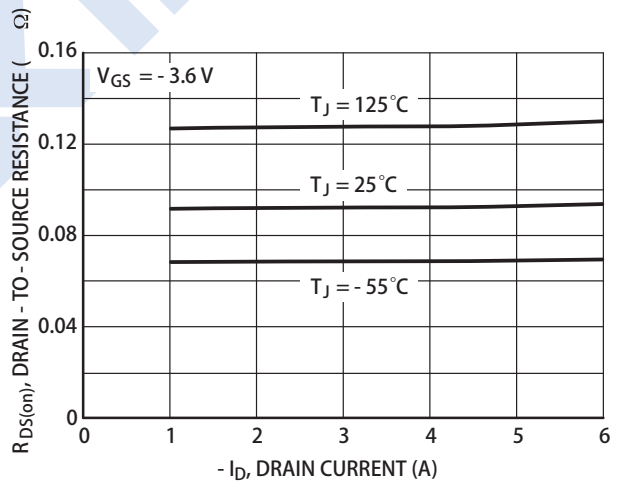


Figure 4. On - Resistance versus Drain Current and Temperature

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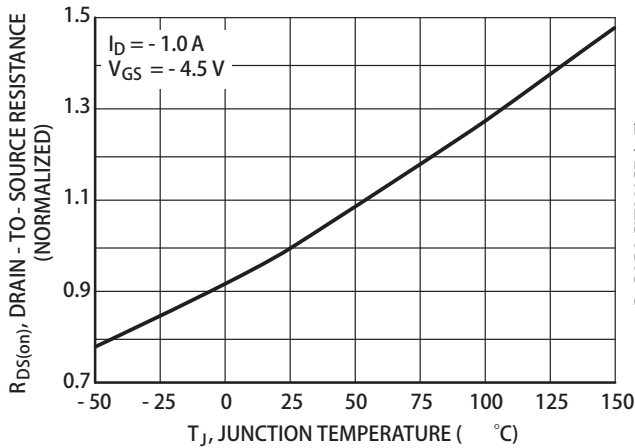


Figure 5. On - Resistance Variation with Temperature

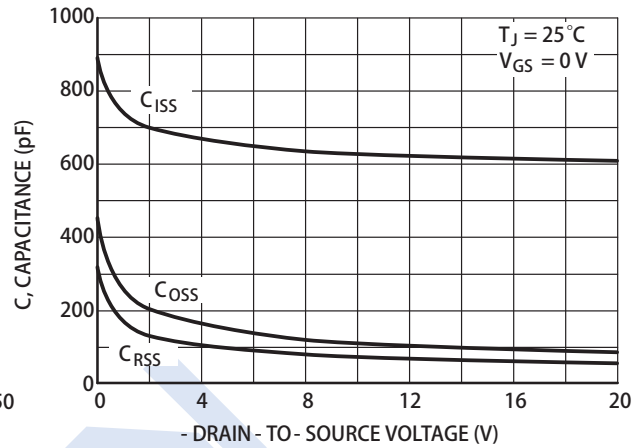


Figure 6. Capacitance Variation

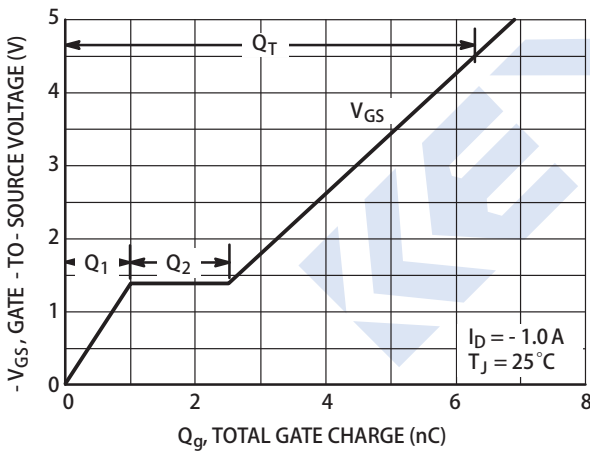


Figure 7. Gate - to - Source and Drain - to - Source Voltage versus Total Charge

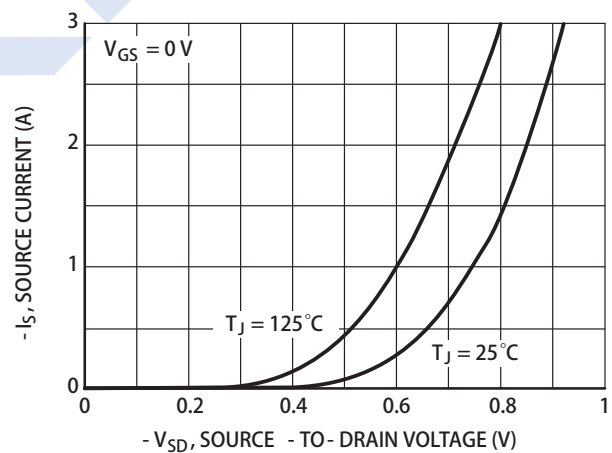


Figure 8. Diode Forward Voltage versus Current