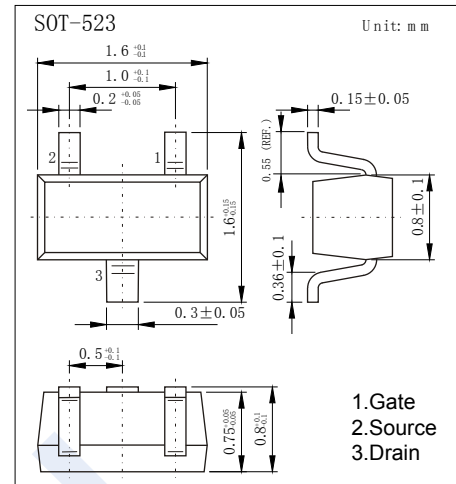
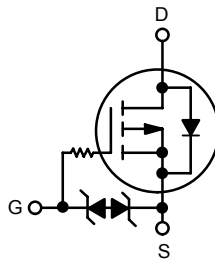


P-Channel MOSFET

NTA4151P

■ Features

- $V_{DS} (V) \approx -20V$
- $I_D \approx -760mA$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 260m\Omega$ ($V_{GS} = -4.5V$)
- $R_{DS(ON)} < 350m\Omega$ ($V_{GS} = -2.5V$)
- $R_{DS(ON)} < 490m\Omega$ ($V_{GS} = -1.8V$)



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 6	
Gate-to-Source ESD Rating – (Human Body Model, Method 3015)	ESD	1.8	KV
Continuous Drain Current	I_D	-0.76	A
Pulsed Drain Current @ $t_p = 10 \mu s$	I_{DM}	-1	
Power Dissipation	P_D	301	mW
Thermal Resistance Junction- to-Ambient	R_{thJA}	415	$^\circ C/W$
Lead Temperature for Soldering Purposes (1/8 in from case for 10 s)	T_L	260	$^\circ C$
Junction Temperature	T_J	150	
Junction Storage Temperature Range	T_{stg}	-55 to 150	

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-100	nA
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±4.5V			±10	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =-250 μA	-0.45		-1.2	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-350mA (Note.1)		260	360	mΩ
		V _{GS} =-2.5V, I _D =-300mA (Note.1)		350	450	
		V _{GS} =-1.8V, I _D =-150mA (Note.1)		490	1000	
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-250mA (Note.1)		0.4		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-5V, f=1MHz		156		pF
Output Capacitance	C _{oss}			28		
Reverse Transfer Capacitance	C _{rss}			18		
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-0.3A		2.1		nC
Threshold Gate Charge	Q _{gth}			0.125		
Gate Source Charge	Q _{gs}			0.325		
Gate Drain Charge	Q _{gd}			0.5		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-200mA, R _G =10Ω		8		ns
Turn-On Rise Time	t _r			8.2		
Turn-Off DelayTime	t _{d(off)}			29		
Turn-Off Fall Time	t _f			20.4		
Maximum Body-Diode Continuous Current	I _S				-250	mA
Diode Forward Voltage	V _{SD}	I _S =-250mA, V _{GS} =0V			-1.1	V

Note.1: Pulse Test: pulse width ≤ 300μs, duty cycle ≤ 2%.

■ Marking

Marking	** M
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P-Channel MOSFET

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■ Typical Characteristics

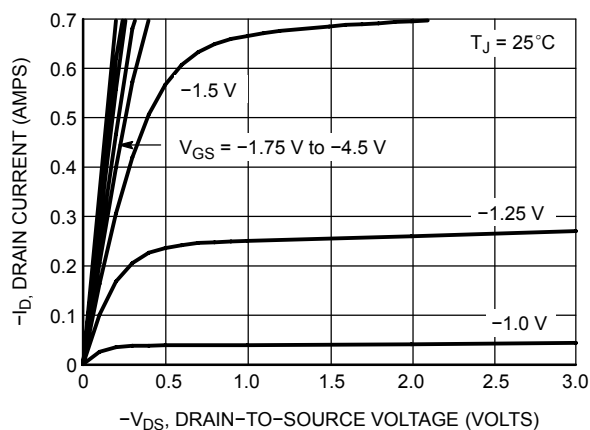


Figure 1. On-Region Characteristics

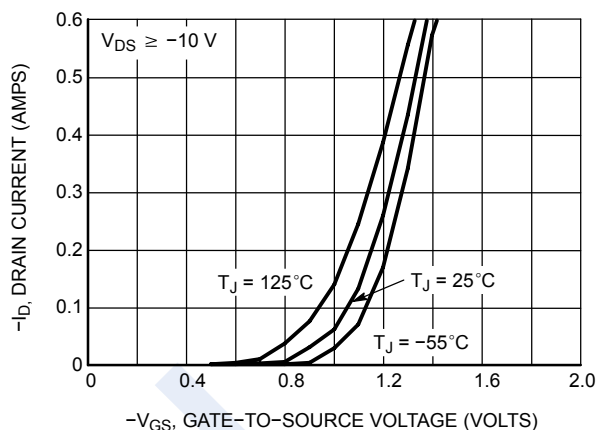


Figure 2. Transfer Characteristics

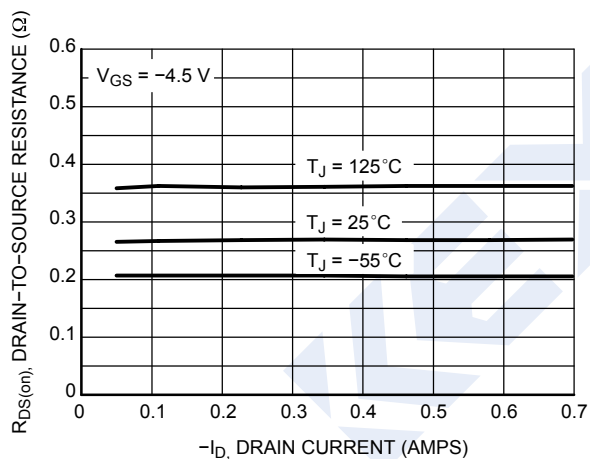


Figure 3. On-Resistance vs. Drain Current and Temperature

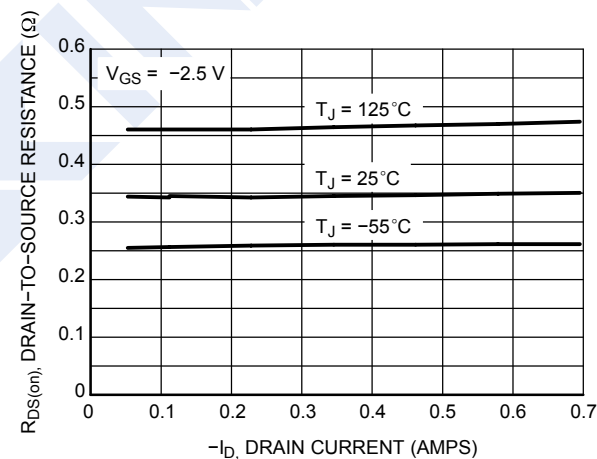


Figure 4. On-Resistance vs. Drain Current and Temperature

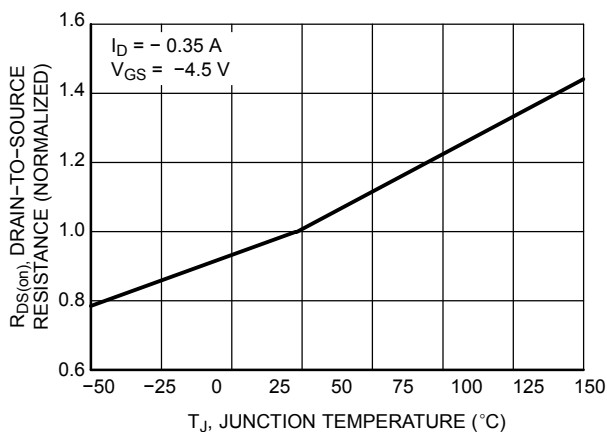


Figure 5. On-Resistance Variation with Temperature

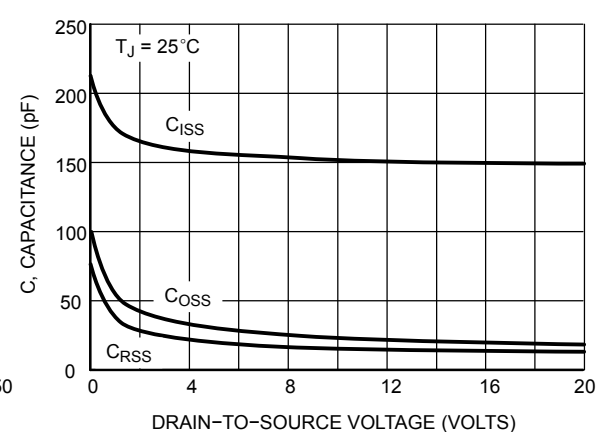


Figure 6. Capacitance Variation

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■ Typical Characteristics

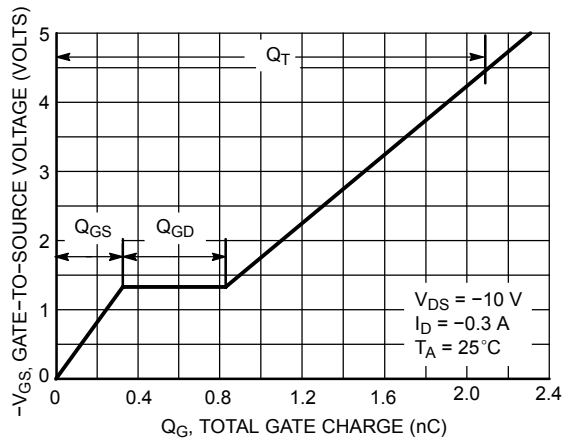


Figure 7. Gate-to-Source Voltage vs. Total Gate Charge

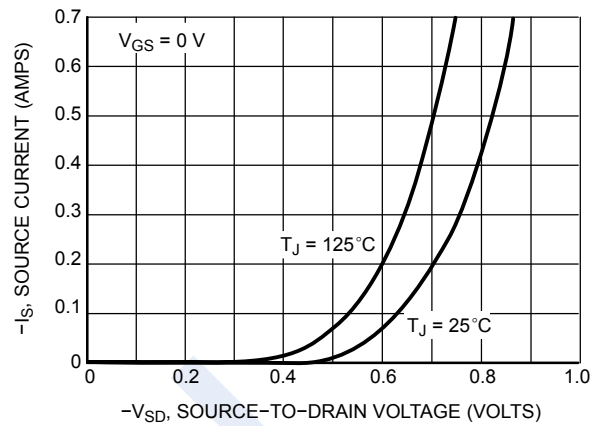


Figure 8. Diode Forward Voltage vs. Current

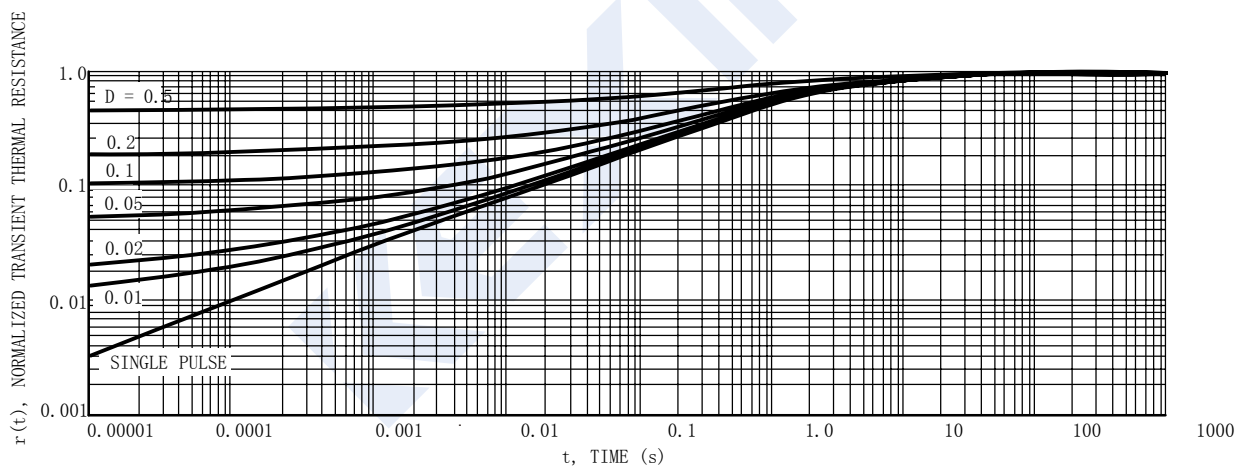


Figure 9. Normalized Thermal Response