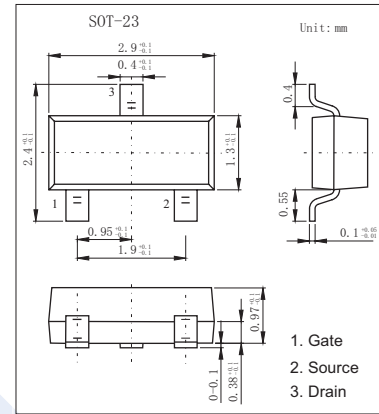
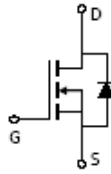


N-Channel MOSFET

NTR4170NT

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 5.8 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 28m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 33m\Omega (V_{GS} = 4.5V)$
- $R_{DS(ON)} < 52m\Omega (V_{GS} = 2.5V)$
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_A=25^\circ C$	5.8
		$T_A=70^\circ C$	4.9
Pulsed Drain Current *	I_{DM}	30	A
Power Dissipation	P_D	$T_A=25^\circ C$	1.4
		$T_A=70^\circ C$	1
Thermal Resistance.Junction- to-Ambient	R_{thJA}	125	$^\circ C/W$
Thermal Resistance.Junction- to-Case	R_{thc}	60	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

* Repetitive rating, pulse width limited by junction temperature.

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	μA
		V _{DS} =24V, V _{GS} =0V, T _J =55°C			5	
Gate-Body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250 μA	0.7		1.4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =5.8A			28	mΩ
		V _{GS} =10V, I _D =5.8A T _J =125°C			39	
		V _{GS} =4.5V, I _D =5A			33	mΩ
		V _{GS} =2.5V, I _D =4A			52	mΩ
On state drain current	I _{D(on)}	V _{GS} =4.5V, V _{DS} =5V	30			A
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =5A	10	15		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		823	1050	pF
Output Capacitance	C _{oss}			99		pF
Reverse Transfer Capacitance	C _{rss}			77		pF
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.4	3.6	Ω
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =15V, I _D =5.8A		9.7	12	nC
Gate Source Charge	Q _{gs}			1.6		nC
Gate Drain Charge	Q _{gd}			3.1		nC
Turn-On DelayTime	t _{D(on)}	V _{GS} =10V, V _{DS} =15V, R _L =2.7 Ω, R _{GEN} =3 Ω		3.3	5	ns
Turn-On Rise Time	t _r			4.8	7	ns
Turn-Off DelayTime	t _{D(off)}			26.3	40	ns
Turn-Off Fall Time	t _f			4.1	6	ns
Body Diode Reverse Recovery Time	t _{rr}	I _F =5A, di/dt=100A/μs		16	20	ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =5A, di/dt=100A/μs		8.9	12	nC
Maximum Body-Diode Continuous Current	I _S				2.5	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.71	1	V

■ Marking

Marking	A0*
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N-Channel MOSFET

NTR4170NT

■ Typical Characteristics

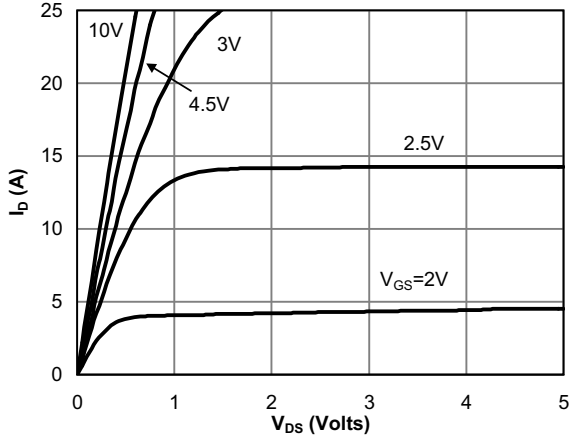


Fig 1: On-Region Characteristics

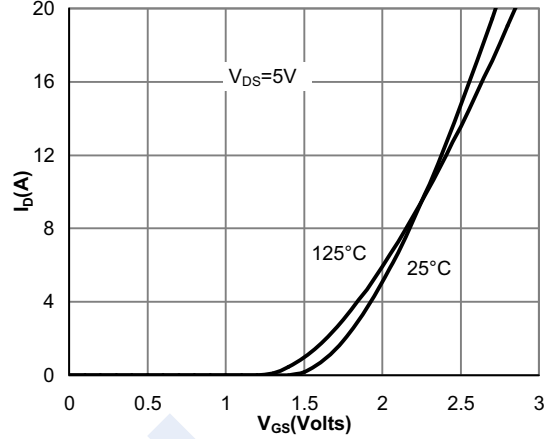


Figure 2: Transfer Characteristics

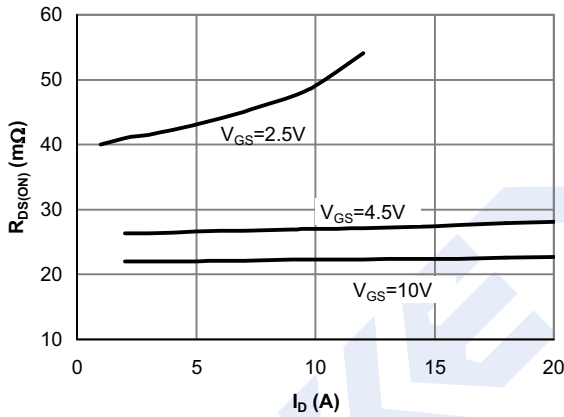


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

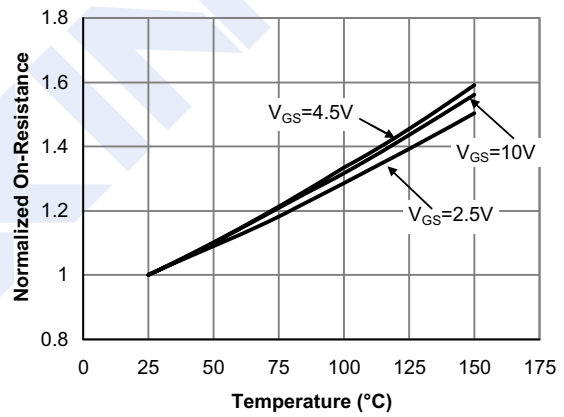


Figure 4: On-Resistance vs. Junction Temperature

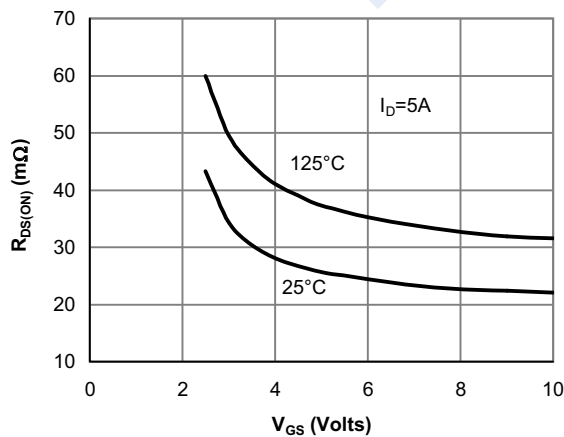


Figure 5: On-Resistance vs. Gate-Source Voltage

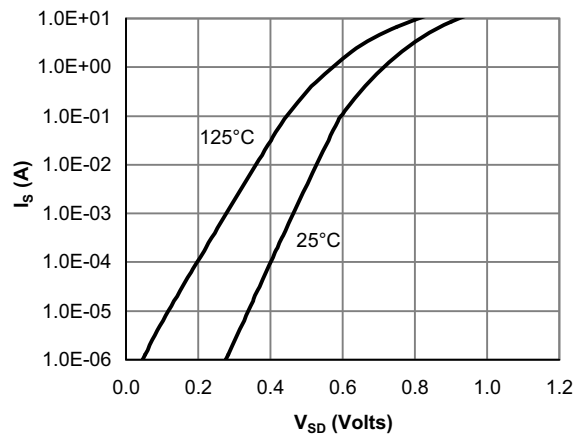


Figure 6: Body-Diode Characteristics

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■ Typical Characteristics

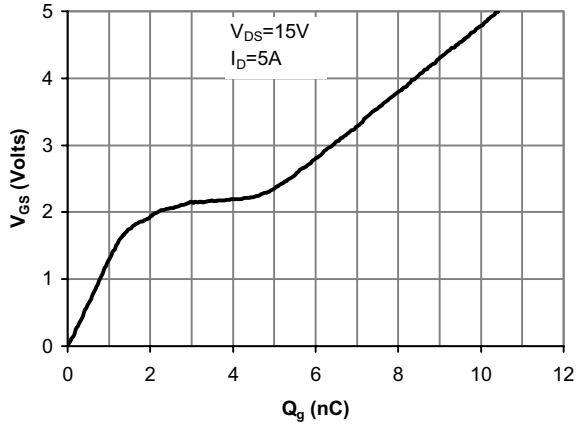


Figure 7: Gate-Charge Characteristics

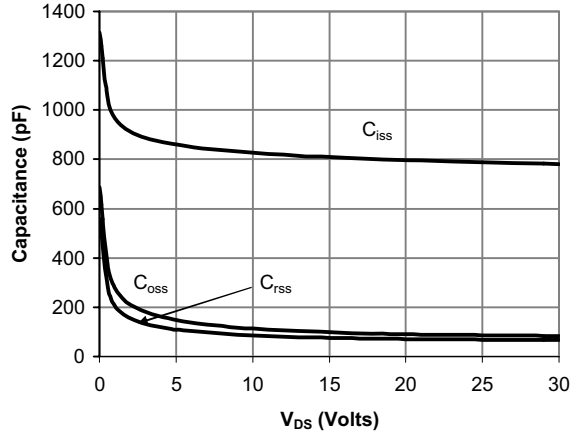


Figure 8: Capacitance Characteristics

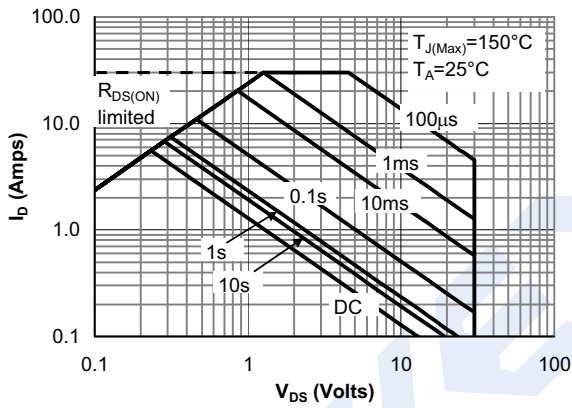


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

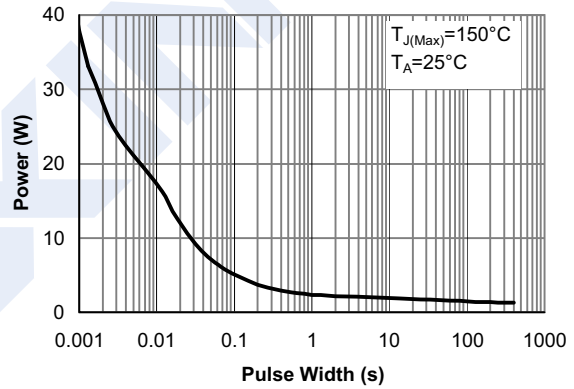


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

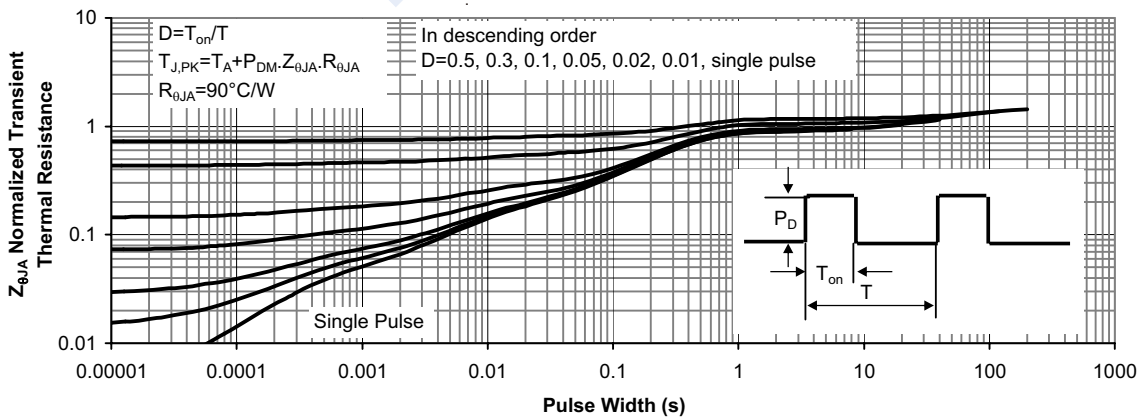


Figure 11: Normalized Maximum Transient Thermal Impedance