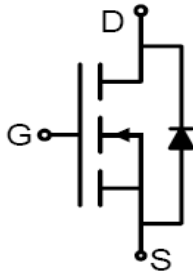
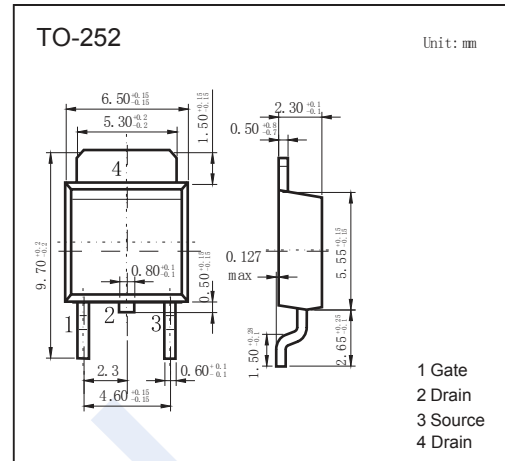


N-Channel MOSFET

NDT90N03

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 85 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 5m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 8m\Omega (V_{GS} = 4.5V)$
- High Power and current handling capability
- Lead free product is acquired
- Surface Mount Package



■ 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	I_D	$T_c=25^\circ C$	85
		$T_c=70^\circ C$	60
Pulsed Drain Current	I_{DM}	200	A
Power Dissipation	P_D	$T_c=25^\circ C$	75
		$T_c=70^\circ C$	38
Repetitive Avalanche Energy (Note.1)	E_{AS}	110	mJ
Thermal Resistance.Junction- to-Case	R_{thJC}	2	$^\circ C/W$
Junction Temperature	T_J	175	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 175	

Note.1:EAS condition: $T_J=25^\circ C, V_{DD}=20V, V_G=10V, R_G=25\Omega$

N-Channel MOSFET

NDT90N03

■ Electrical Characteristics Ta = 25°C

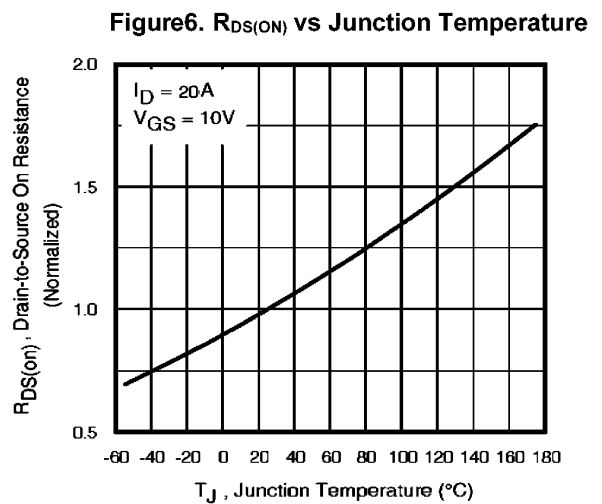
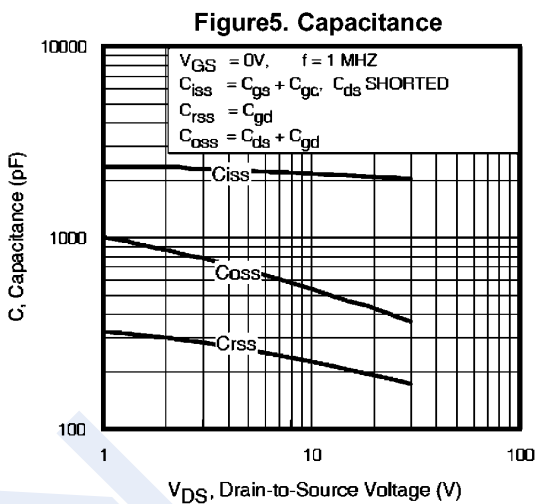
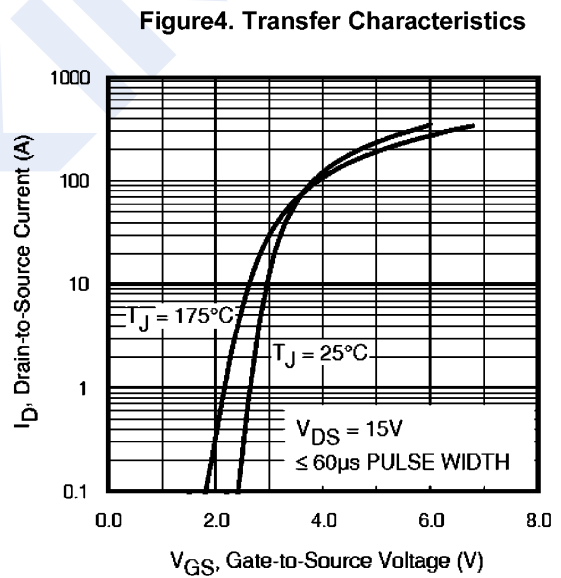
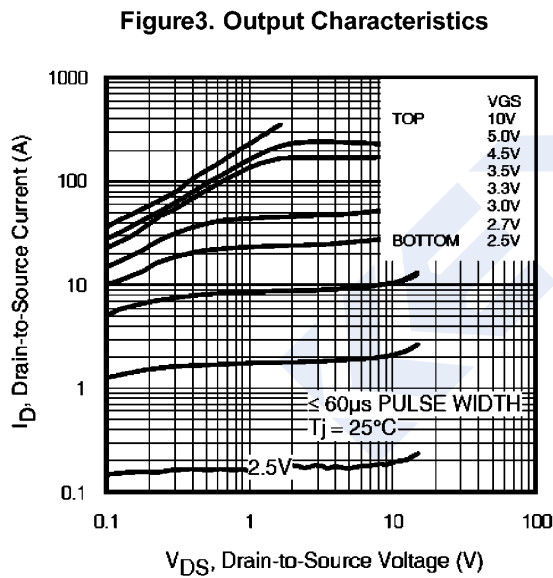
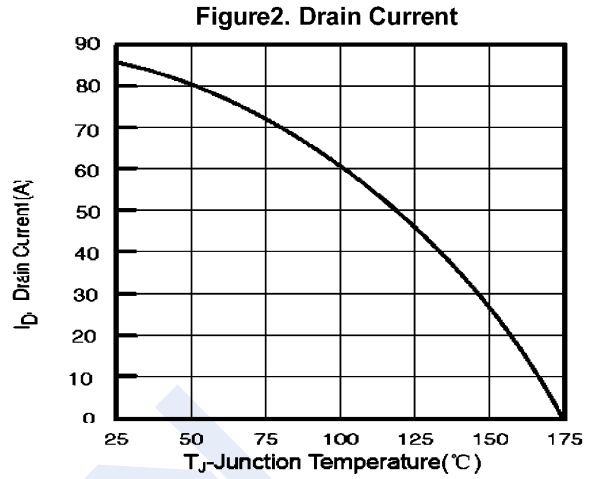
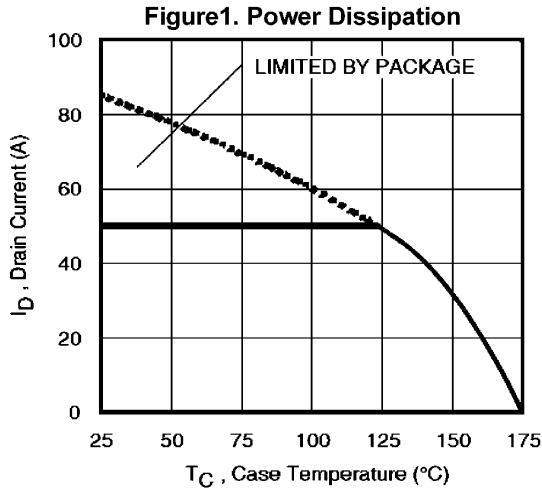
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	30			V	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250 μA	1.2		2.4	V	
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A T _C =25°C			5	mΩ	
		V _{GS} =10V, I _D =20A T _C =125°C			6.8		
		V _{GS} =4.5V, I _D =20A			8		
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A	50			S	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		2100		pF	
Output Capacitance	C _{oss}			500			
Reverse Transfer Capacitance	C _{rss}			200			
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		1.7		Ω	
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =20A		18		nC	
Total Gate Charge (4.5V)				8.5			
Gate Source Charge			Q _{gs}		4.8		
Gate Drain Charge			Q _{gd}		2.5		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =15V, R _L =0.75Ω, R _{GEN} =3Ω		7.5		ns	
Turn-On Rise Time	t _r			4.8			
Turn-Off DelayTime	t _{d(off)}			23			
Turn-Off Fall Time	t _f			4.5			
Body Diode Reverse Recovery Time	t _{rr}	I _F =20A, di/dt=100A/us		14		nC	
Body Diode Reverse Recovery Charge	Q _{rr}			16			
Maximum Body-Diode Continuous Current	I _S				85	A	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.2	V	

■ Marking

Marking	CSD30N39
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N-Channel MOSFET NDT90N03

■ Typical Characteristics



N-Channel MOSFET NDT90N03

■ Typical Characteristics

Figure7. Max BV_{DSS} vs Junction Temperature

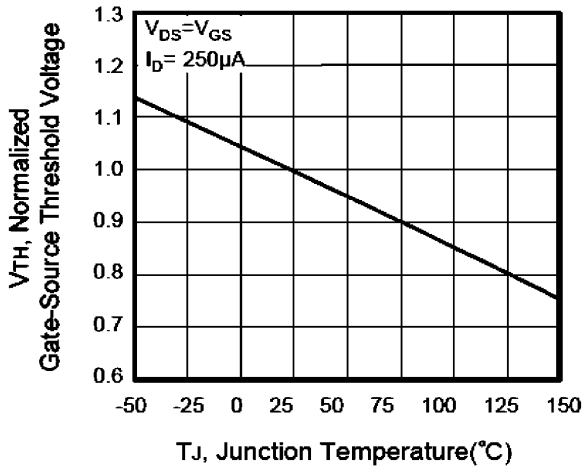


Figure8. $V_{GS(th)}$ vs Junction Temperature

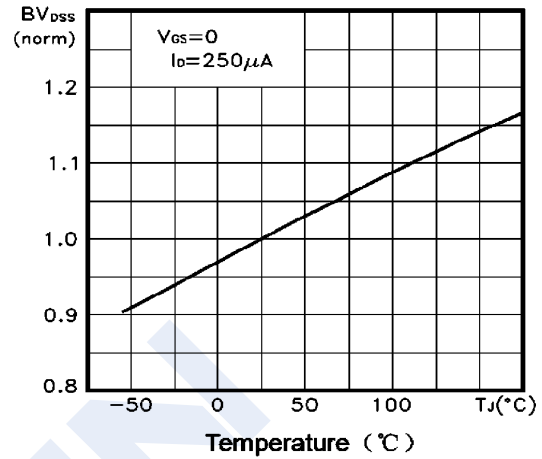


Figure9. Gate Charge Waveforms

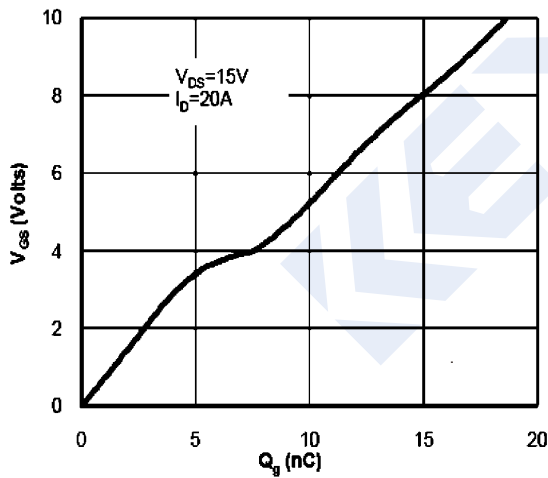


Figure10. Maximum Safe Operating Area

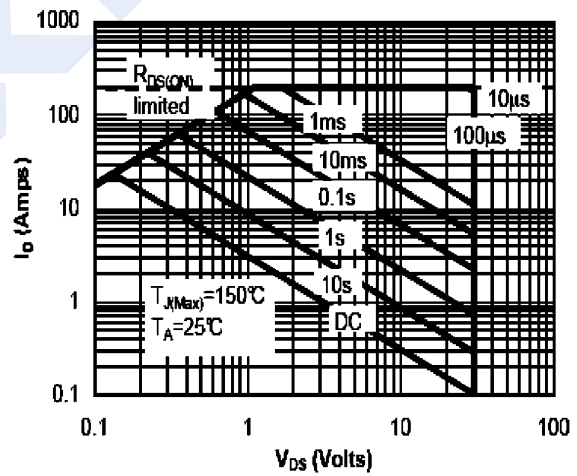


Figure11. Normalized Maximum Transient Thermal Impedance

