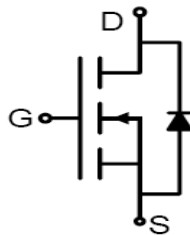
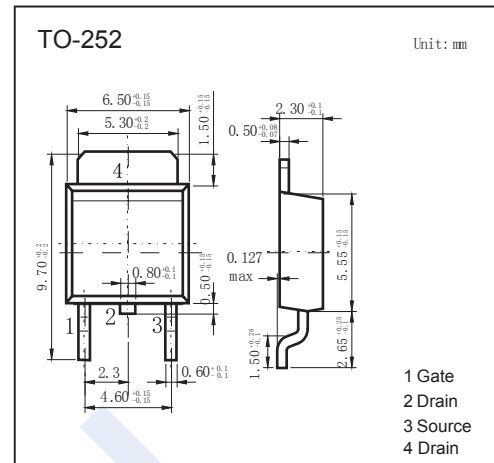


## N-Channel MOSFET

### NDT110N03

#### ■ Features

- $V_{DS} = 30V$
- $I_D = 110 A$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 4m\Omega$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 6m\Omega$  ( $V_{GS} = 4.5V$ )
- 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	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	$T_c=25^\circ C$	110
		$T_c=70^\circ C$	78
Pulsed Drain Current	$I_{DM}$	300	A
Power Dissipation	$P_D$	$T_c=25^\circ C$	100
		$T_c=70^\circ C$	50
Repetitive Avalanche Energy (Note.1)	$E_{AR}$	150	mJ
Thermal Resistance.Junction- to-Case	$R_{thJC}$	1.5	$^\circ C/W$
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

### NDT110N03

#### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	30			V	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1.2		2.4	V	
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =20A T <sub>C</sub> =25°C			4	mΩ	
		V <sub>GS</sub> =10V, I <sub>D</sub> =20A T <sub>C</sub> =125°C			5.5		
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =20A			6		
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =20A	50			S	
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz		4400		pF	
Output Capacitance	C <sub>oss</sub>			720			
Reverse Transfer Capacitance	C <sub>rss</sub>			410			
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		0.5	0.7	Ω	
Total Gate Charge (10V)	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, I <sub>D</sub> =20A		59		nC	
Total Gate Charge (4.5V)				30			
Gate Source Charge			Q <sub>gs</sub>		10		
Gate Drain Charge			Q <sub>gd</sub>		20		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>L</sub> =0.75Ω, R <sub>GEN</sub> =3Ω		15		ns	
Turn-On Rise Time	t <sub>r</sub>			17			
Turn-Off DelayTime	t <sub>d(off)</sub>			44			
Turn-Off Fall Time	t <sub>f</sub>			18			
Body Diode Reverse Recovery Time	t <sub>rr</sub>		I <sub>F</sub> =20A, di/dt=100A/us		36		
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			30		nC	
Maximum Body-Diode Continuous Current	I <sub>S</sub>				110	A	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =20A, V <sub>GS</sub> =0V			1	V	

#### ■ Marking

Marking	CSD30N30
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## N-Channel MOSFET NDT110N03

■ Typical Characteristics

Figure1. Power Dissipation

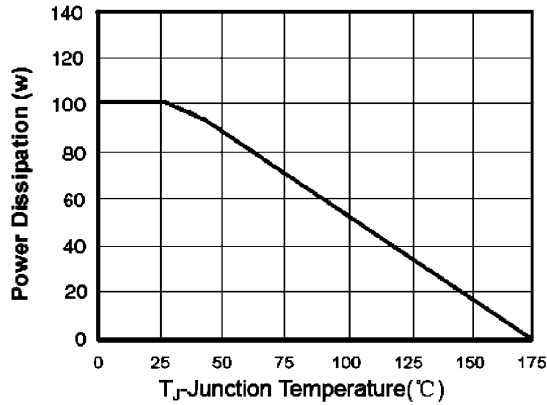


Figure2. Drain Current

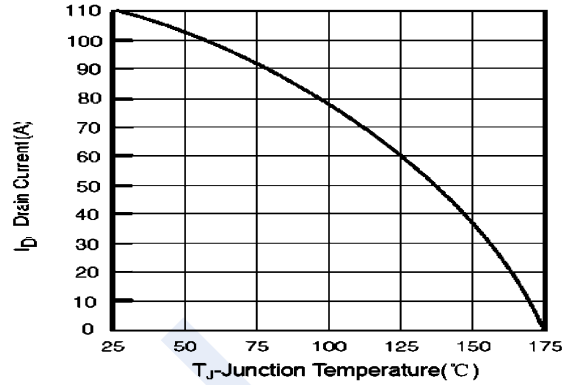


Figure3. Output Characteristics

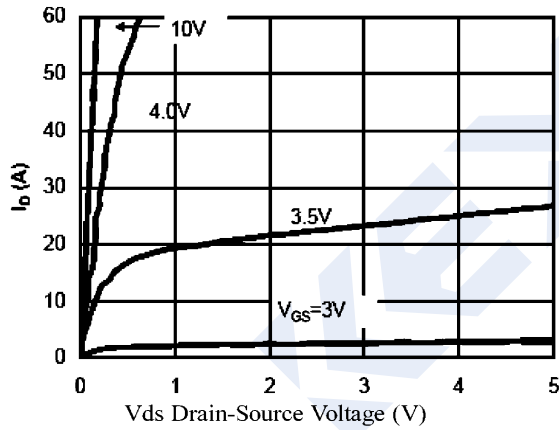


Figure4. Transfer Characteristics

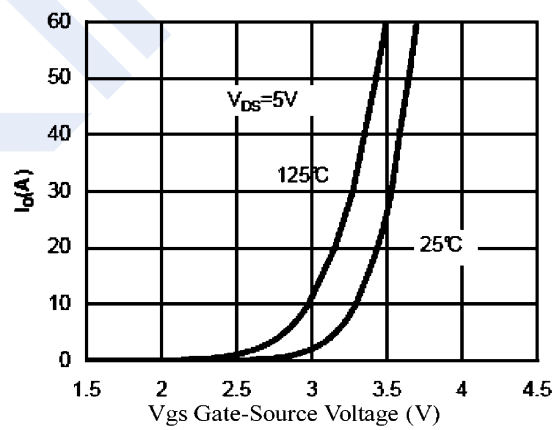


Figure5. Capacitance

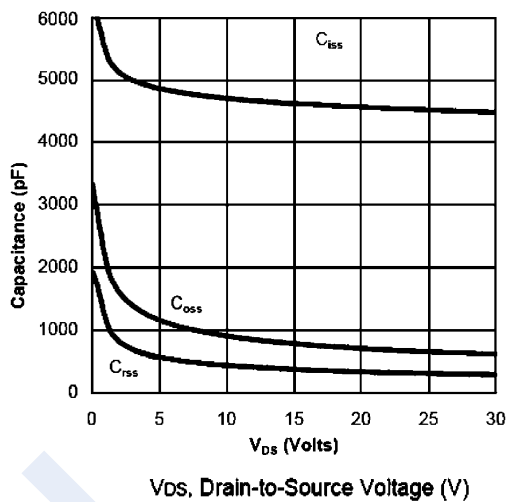
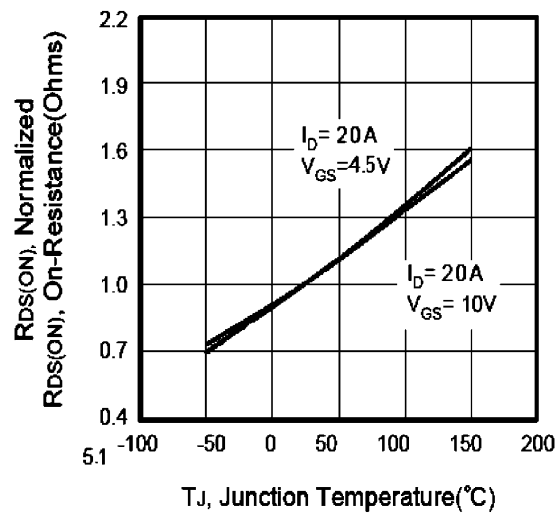


Figure6. R<sub>DS(ON)</sub> vs Junction Temperature



## N-Channel MOSFET NDT110N03

■ Typical Characteristics

Figure7. Max  $BV_{DSS}$  vs Junction Temperature

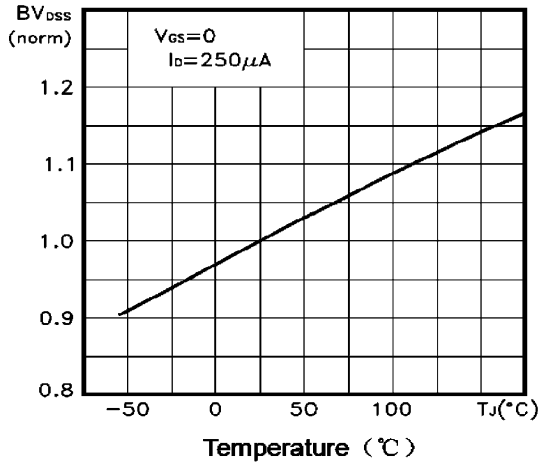


Figure8.  $V_{GS(th)}$  vs Junction Temperature

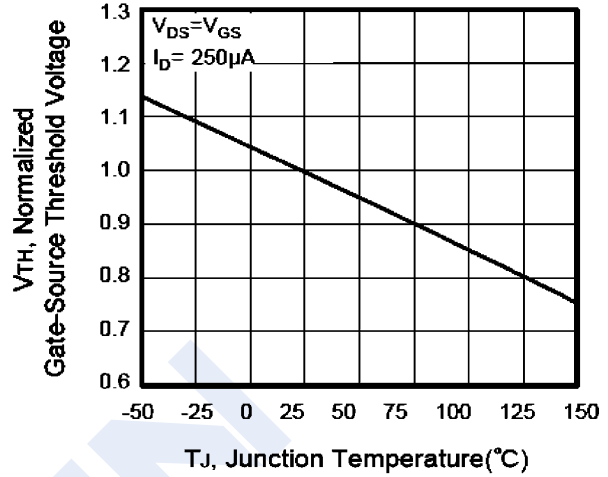


Figure9. Gate Charge Waveforms

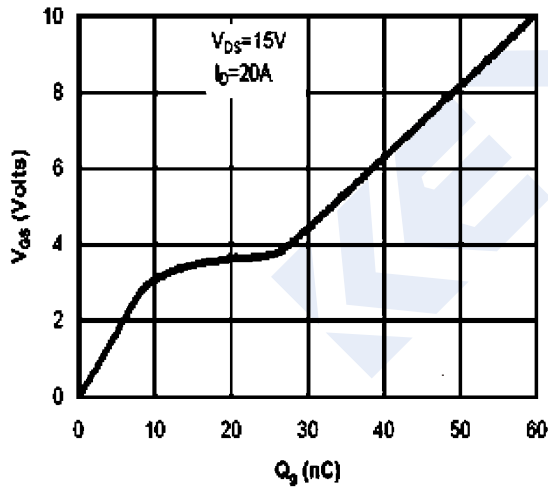


Figure10. Maximum Safe Operating Area

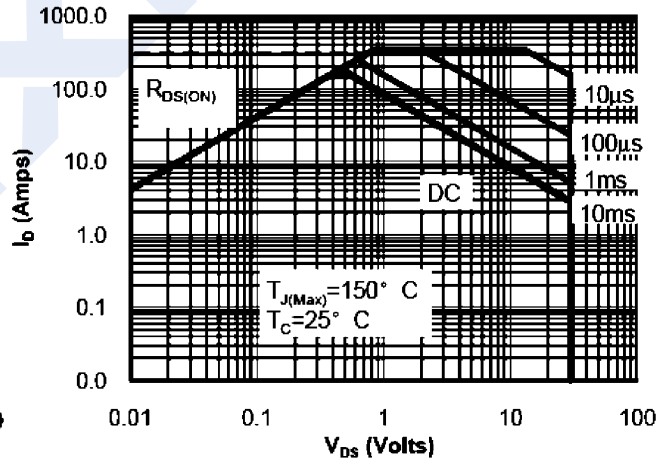


Figure11. Normalized Maximum Transient Thermal Impedance

