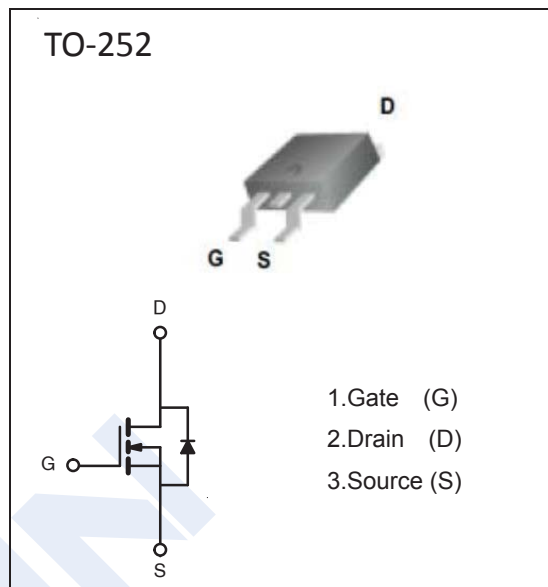


N-Channel MOSFET

NDT5N20

■ Features

- Low Intrinsic Capacitances.
- Excellent Switching Characteristics.
- Extended Safe Operating Area.
- Unrivalled Gate Charge : $Q_g=12\text{nC}$ (Typ.).
- $BV_{DS}=200\text{V}$, $I_D=5\text{A}$
- $R_{DS(on)} : 0.58\Omega$ (Max) @ $V_G=10\text{V}$
- 100% Avalanche Tested

■ Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	5	A
Pulsed Drain Current (Note 1)	I_{DM}	20	
Power Dissipation	P_D	30	W
Thermal Resistance Junction- to-Ambient (Note 2)	R_{thJA}	4.17	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

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■ Electrical Characteristics (T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BVDSS	ID=250μA, VGS=0V	200			V
Zero Gate Voltage Drain Current	IDSS	VDS=200V, VGS=0V			1	μA
Gate-Body Leakage Current	IGSS	VDS=0V, VGS=±20V			±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=250μA	1.2		2.5	V
Static Drain-Source On-Resistance	RDS(on)	VGS=10V, ID=2A			580	mΩ
Forward Transconductance	gFS	VDS=15V, ID=2A		8		S
Dynamic Characteristics (Note 4)						
Input Capacitance	Ciss	VGS=0V, VDS=25V, f=1MHz		580		pF
Output Capacitance	Coss			90		
Reverse Transfer Capacitance	Crss			3		
Switching Characteristics (Note 4)						
Turn-On DelayTime	td(on)	VDD=100V,RL=15Ω VGS=10V,RG=2.5Ω		10		ns
Turn-On Rise Time	tr			12		
Turn-Off DelayTime	td(off)			15		
Turn-Off Fall Time	tf			15		
Total Gate Charge	Qg	VDS=100V, ID=2A, VGS=10V		12		nC
Gate Source Charge	Qgs			2.5		
Gate Drain Charge	Qgd			3.8		
Drain-Source Diode Characteristics						
Diode Forward Current (Note 2)	IS				5	A
Diode Forward Voltage (Note 3)	VSD	IS=2A,VGS=0V			1.2	V

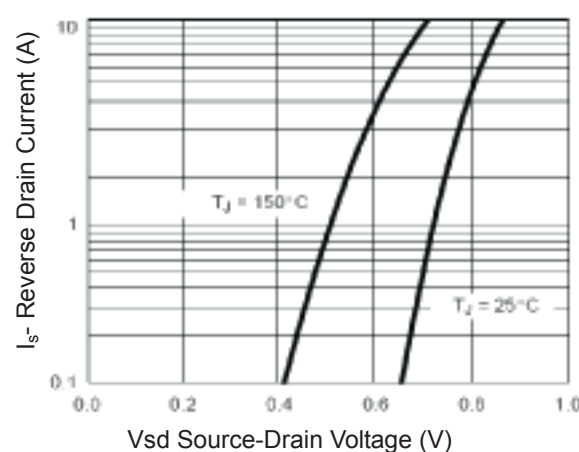
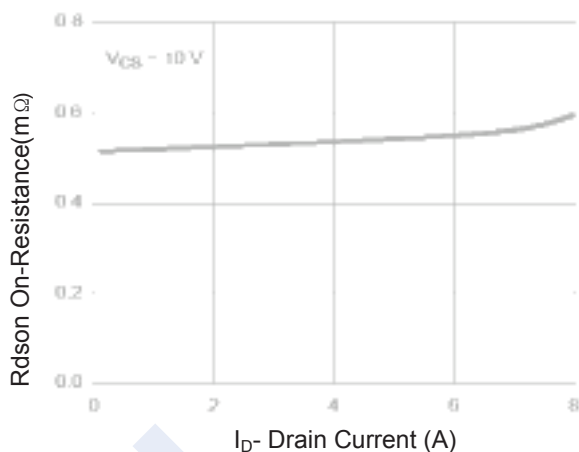
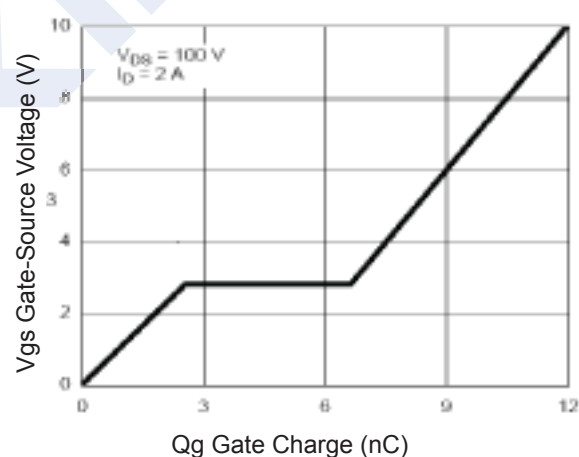
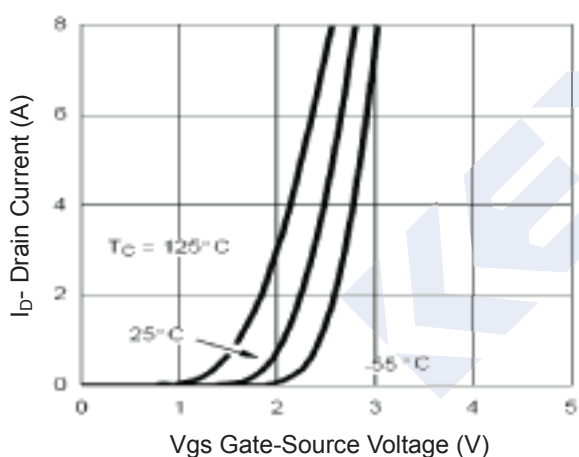
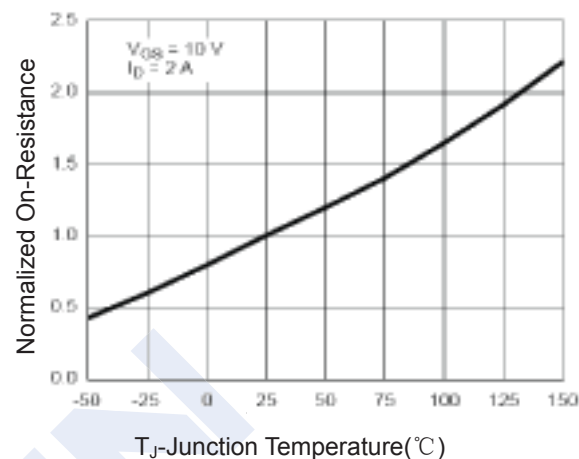
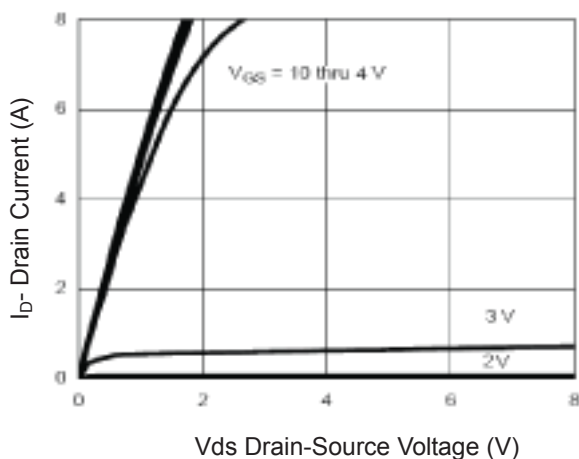
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production.

N-Channel MOSFET

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■ Typical Characteristics



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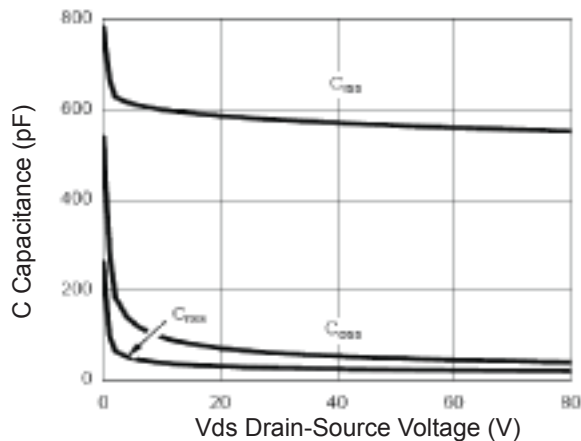


Figure 7 Capacitance vs Vds

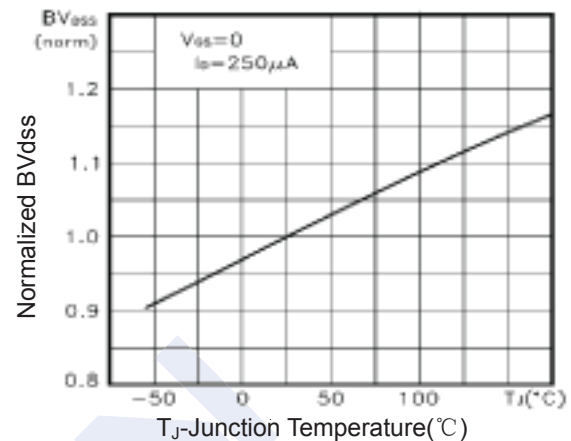
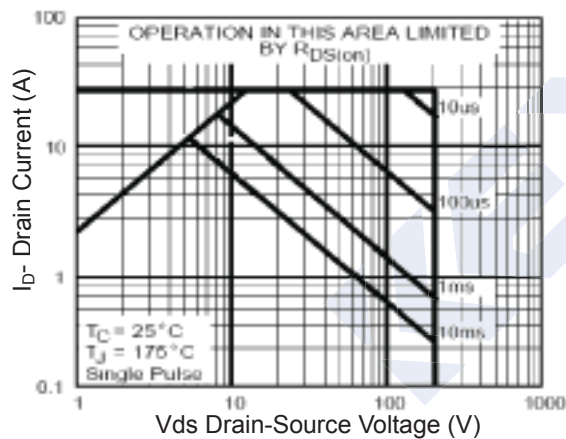
Figure 9 BV_{DSS} vs Junction Temperature

Figure 8 Safe Operation Area

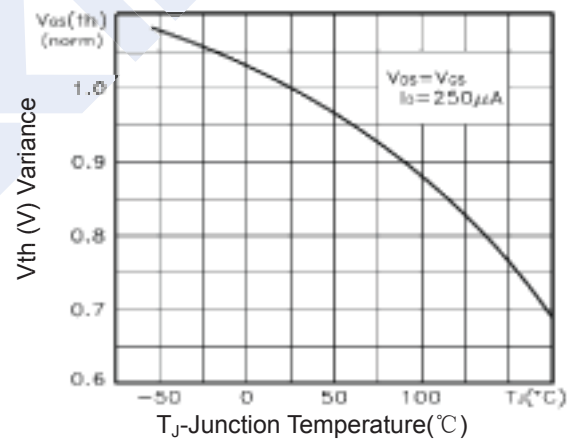
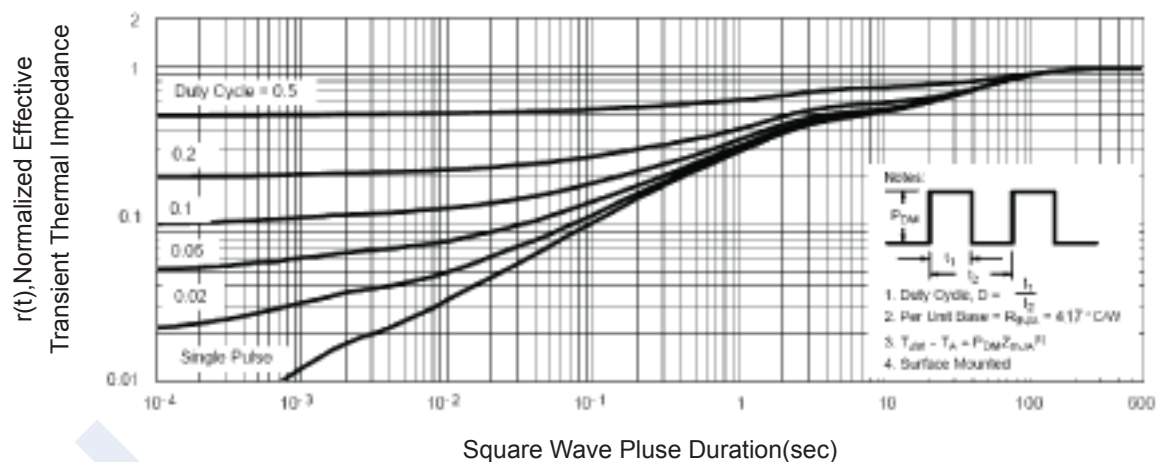
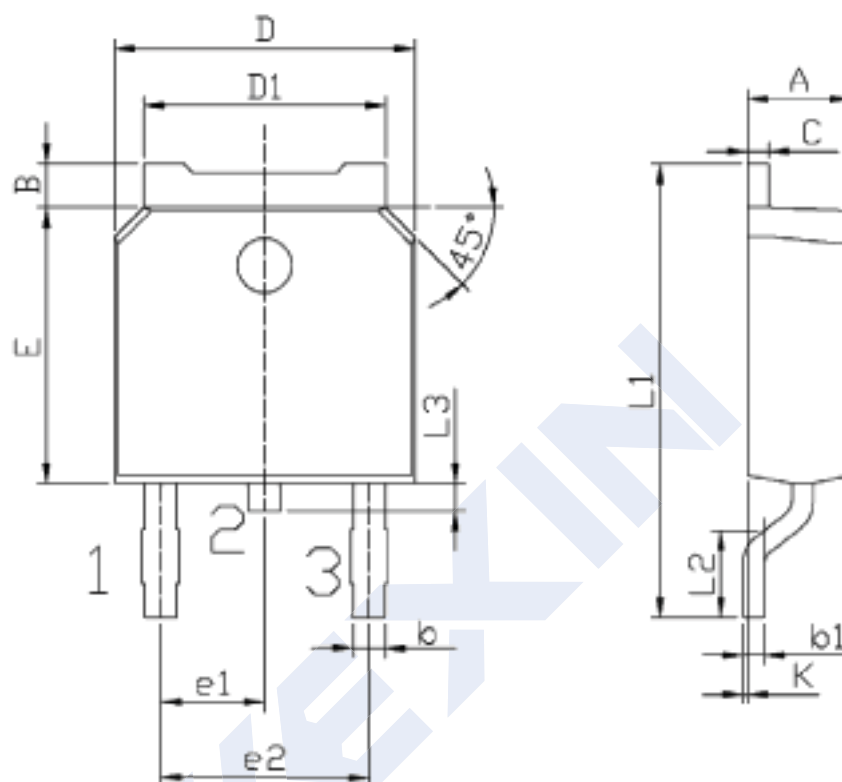
Figure 10 V_{GS(th)} vs Junction Temperature

Figure 11 Normalized Maximum Transient Thermal Impedance

N-Channel MOSFET

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■ Package Dimension



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.70	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.85	10.35
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.20	5.40	K	0.00	0.10