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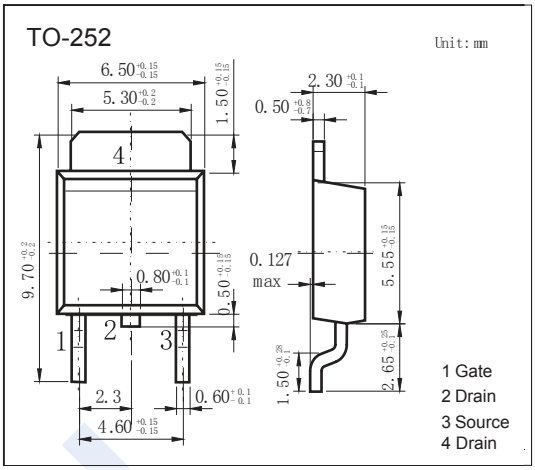
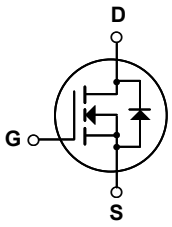
NDT20N06



■ Features

- $V_{DS\ (V)}$ = 60V
- I_D = 16.8 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 63mΩ (V_{GS} = 10V)
- Low Gate Charge (Typ.11.5 nC)
- Low Crss (Typ. 25 pF)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±25	
Continuous Drain Current	Tc=25℃	I_D	16.8	A
	Tc=70℃		10.6	
Pulsed Drain Current		I_{DM}	67.2	
Avalanche Current		I_{AR}	16.8	
Single Pulsed Avalanche Energy	(Note.1)	E_{AS}	155	mJ
Repetitive Avalanche Energy		E_{AR}	3.8	
Peak Diode Recovery dv/dt	(Note.2)	dv/dt	7	V/ns
Power Dissipation	Ta=25℃	P_D	2.5	W
	Tc=25℃		38	
Derate above 25°C			0.3	W/℃
Thermal Resistance.Junction- to-Ambient		R_{thJA}	50	℃/W
Thermal Resistance, Junction-to-Ambient, Max.			110	
Thermal Resistance.Junction- to-Case		R_{thJC}	3.28	
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds		T_L	300	℃
Junction Temperature		T_J	150	
Storage Temperature Range		T_{stg}	-55 to 150	

Note.1: L= 640uH, I_{AS}=16.8A, V_{DD}=25V, R_G=25Ω Starting T_J = 25°C

Note.2: I_{SD}≤20A, di/dt≤300A/us, V_{DD}≤BV_{DSS}, Starting T_J = 25°C

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250uA, V_{GS}=0V	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	uA
		V_{DS}=48V, V_{GS}=0V, T_J=125℃			10	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±25V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	2		4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=8.4A			63	mΩ
Forward Transconductance	g_{FS}	V_{DS}=25V, I_D=8.4A		10		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz			590	pF
Output Capacitance	C_{oss}				220	
Reverse Transfer Capacitance	C_{rss}				35	
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=48V, I_D=20A			15	nC
Gate Source Charge	Q_{gs}			3		
Gate Drain Charge	Q_{gd}			4.5		
Turn-On DelayTime	$t_{d(on)}$	V_{DS}=30V, I_D=10A,R_G=25Ω			20	ns
Turn-On Rise Time	t_r				100	
Turn-Off DelayTime	$t_{d(off)}$				50	
Turn-Off Fall Time	t_f				60	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 20A, dI/dt=100A/us,V_{GS}=0V		43		
Body Diode Reverse Recovery Charge	Q_{rr}			50		nC
Continuous Drain-Source Diode Forward Current	I_S				16.8	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				67.2	
Diode Forward Voltage	V_{SD}	I_S=16.8A,V_{GS}=0V			1.5	V

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■ Typical Characterisitics

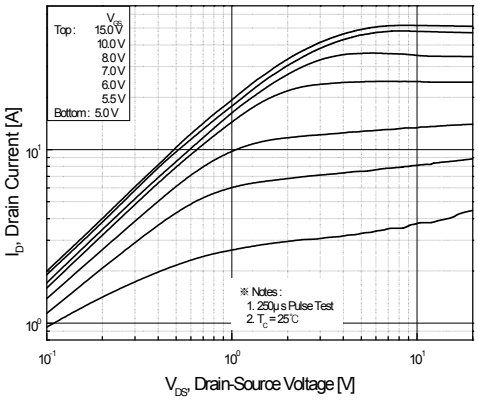

Figure 1. On-Region Characteristics

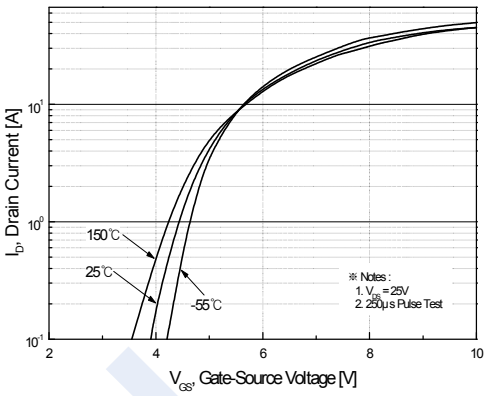

Figure 2. Transfer Characteristics

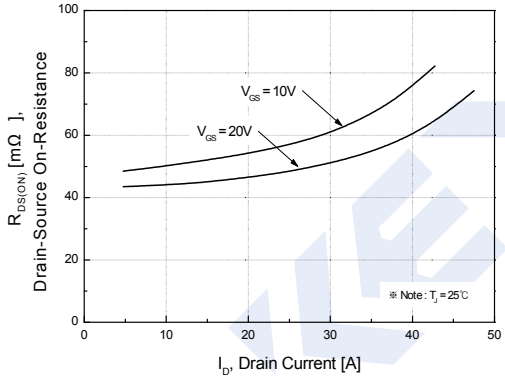

Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

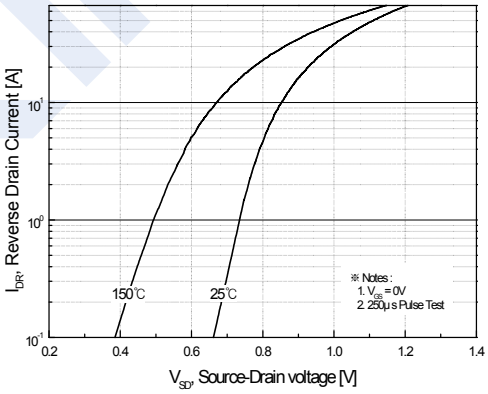

Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

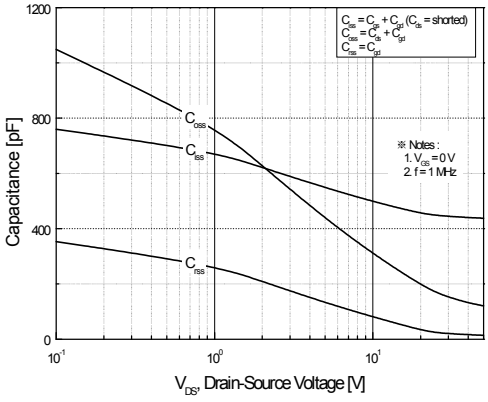

Figure 5. Capacitance Characteristics

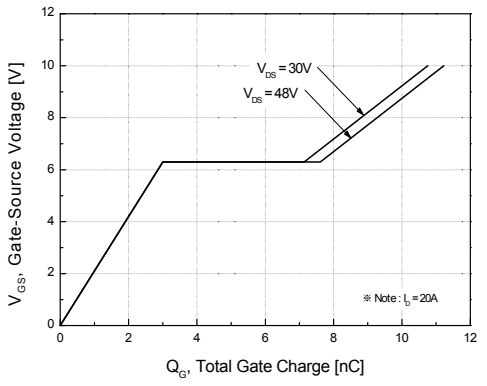

Figure 6. Gate Charge Characteristics

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■ Typical Characterisitics

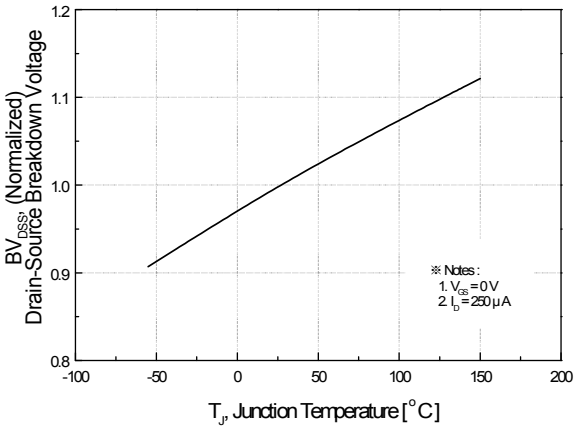

Figure 7. Breakdown Voltage Variation vs. Temperature

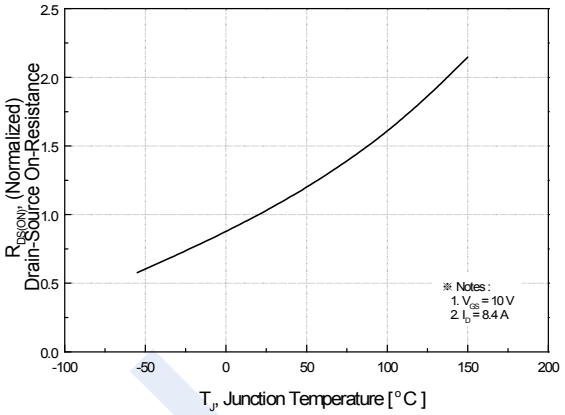

Figure 8. On-Resistance Variation vs. Temperature

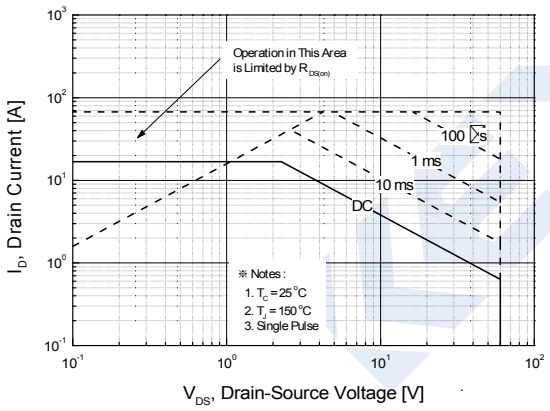

Figure 9. Maximum Safe Operating Area

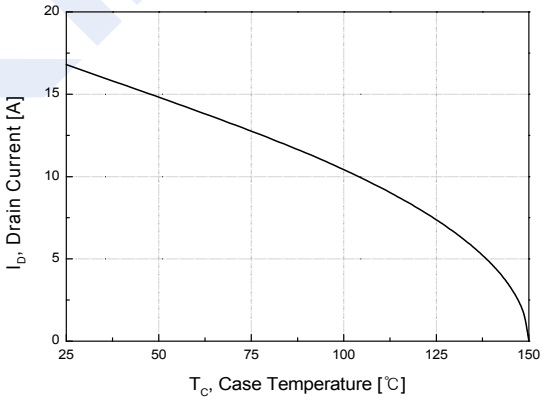

Figure 10. Maximum Drain Current vs. Case Temperature

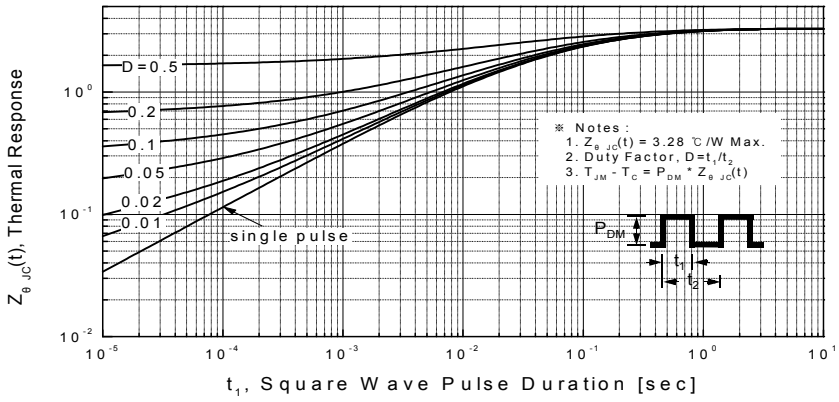

Figure 11. Transient Thermal Response Curve

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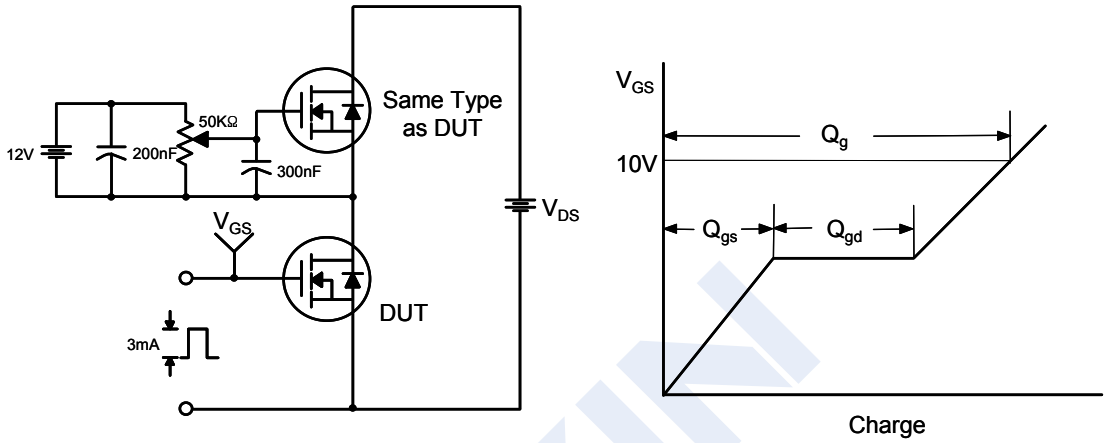
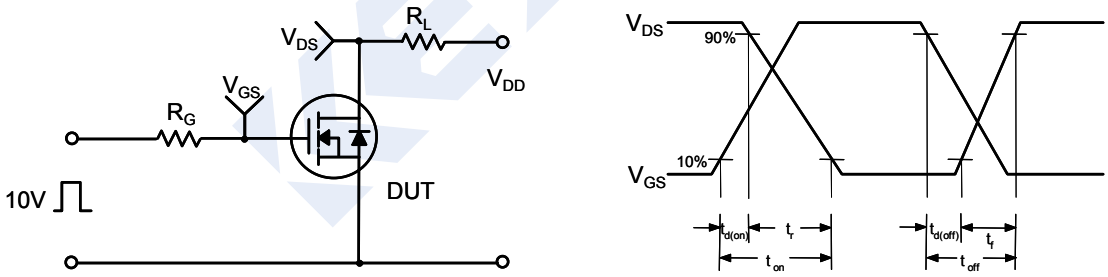
■ Typical Characterisitics

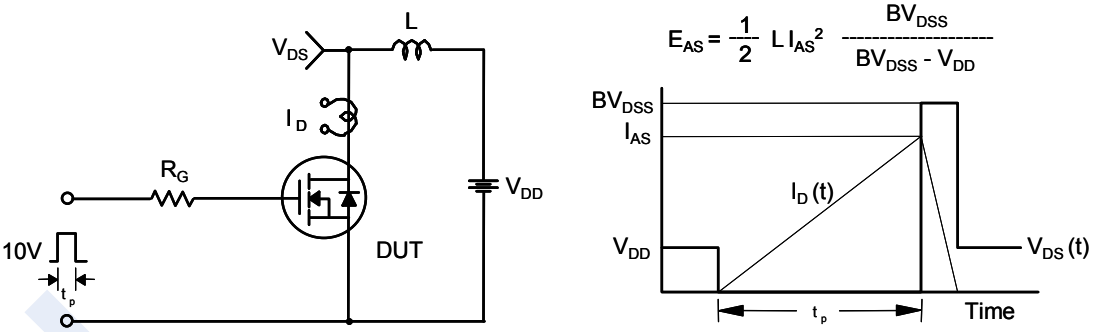
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



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■ Typical Characterisitics

Peak Diode Recovery dv/dt Test Circuit & Waveforms