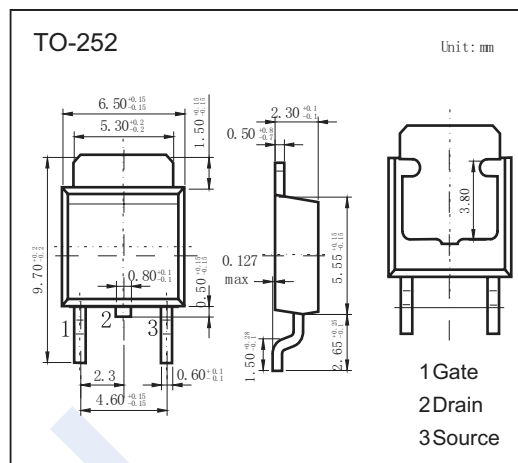
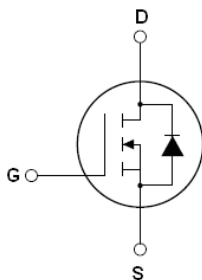


N-Channel Trench Power MOSFET

NDT70N06

■ Features

- $V_{DS} = 60V$; $I_D = 88A$
- $R_{DS(ON)} < 6.6m\Omega$ ($V_{GS} = 10V$)
- Ultra Low On-Resistance
- High UIS and UIS 100% Test

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current $T_c=25^\circ C$	I_D	88	A
$T_c=100^\circ C$		62	
Pulsed Drain Current ^(Note 1)		352	
Power Dissipation $T_c=25^\circ C$	P_D	111	W
Single Pulse Avalanche Energy ^(Note 2)	E_{AS}	484	mJ
Thermal Resistance, Junction- to-Case	R_{thJC}	1.35	$^\circ C/W$
Junction Temperature	T_J	175	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to +175	

Notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature

2. E_{AS} condition: $T_J=25^\circ C$, $V_{DD}=30V$, $V_G=10V$, $R_G=25\Omega$

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250μA, V _{GS} =0V	60			V
Zero Gate Voltage Drain Current (Tc=25°C)	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Zero Gate Voltage Drain Current (Tc=100°C)	I _{DSS}	V _{DS} =60V, V _{GS} =0V			5	
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 =250μA	2		4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =12A			6.6	mΩ
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =15A	20			S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =30V, f=1MHz		4060		pF
Output Capacitance	C _{oss}			385		
Reverse Transfer Capacitance	C _{rss}			292		
Total Gate Charge	Q _g	V _{DS} =30V, I _D =15A, V _{GS} =10V		102		nC
Gate Source Charge	Q _{gs}			20		nC
Gate Drain Charge	Q _{gd}			49		nC
Turn-On DelayTime	t _{d(on)}	V _{DS} =30V, R _L =2.5Ω V _{GS} =10V, R _G =3Ω		24		ns
Turn-On Rise Time	t _r			32		
Turn-Off DelayTime	t _{d(off)}			69		
Turn-Off Fall Time	t _f			31		
Body Diode Reverse Recovery Time ^(Note1)	t _{rr}	I _F = 15A, dI/dt= 100A/μs		28		nA
Body Diode Reverse Recovery Charge ^(Note1)	Q _{rr}			39		
Maximum Body-Diode Continuous Current	I _S			88		A
Maximum Body-Diode Pulsed Current	I _{SM}			352		A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			0.99	V
Forward Turn-on Time	t _{on}	Intrinsic turn-on time is negligible(turn-on is dominated by L _S +L _D)				

Notes 1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 1.5%, Starting T_J = 25°C

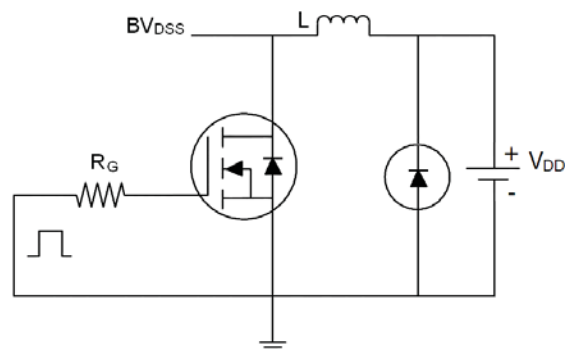
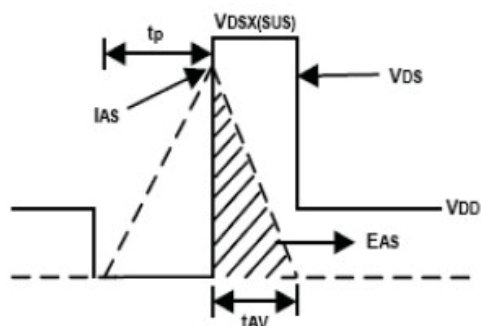
■ Marking

Marking	CSD60N53
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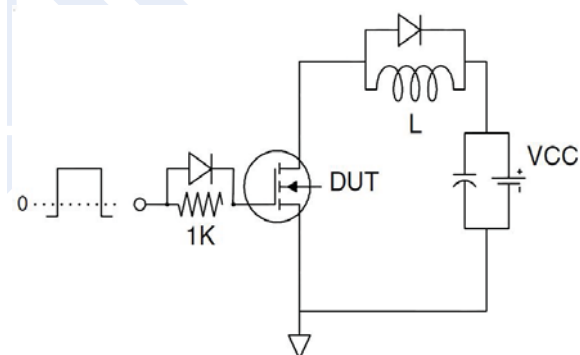
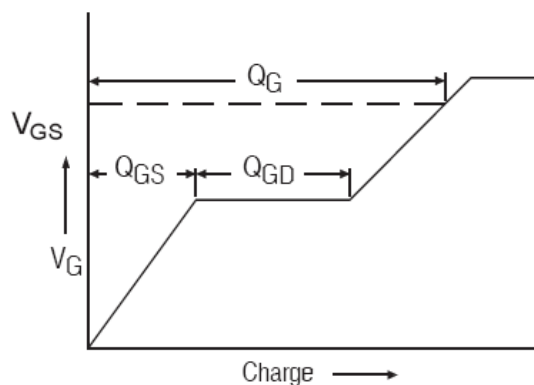
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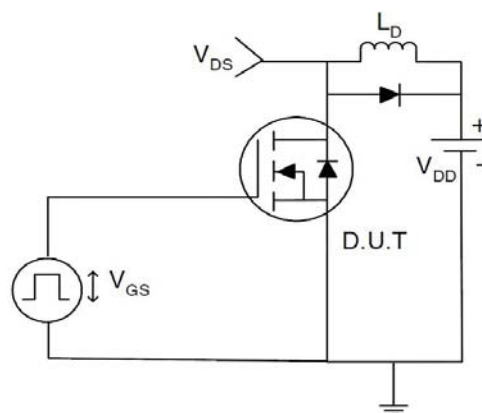
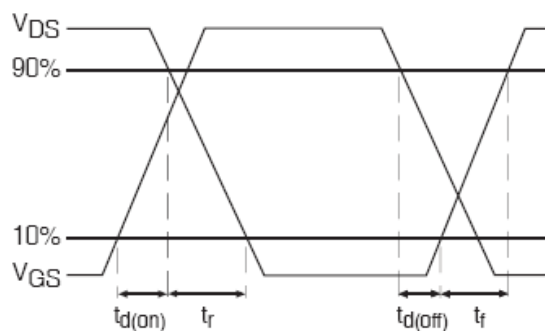
■ Test Circuits

1) E_{AS} Test Circuits

2) Gate Charge Test Circuit:



3) Switch Time Test Circuit:



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■ Typical Characteristics

Figure1. Output Characteristics

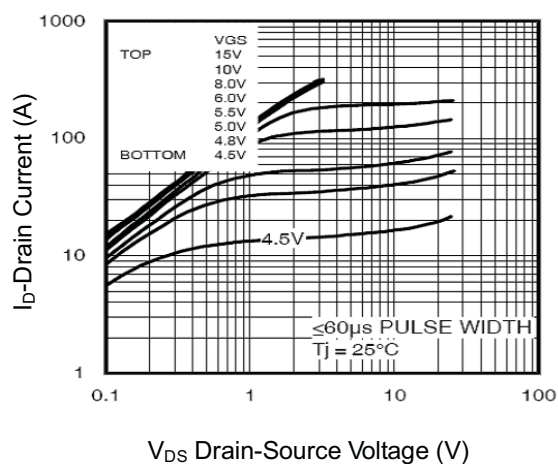


Figure2. Transfer Characteristics

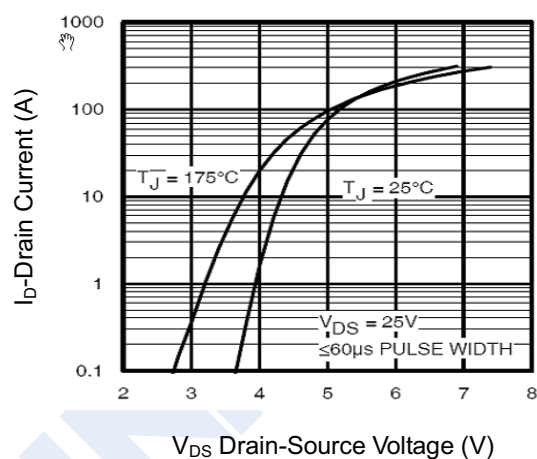


Figure3. BVDS vs Junction Temperature

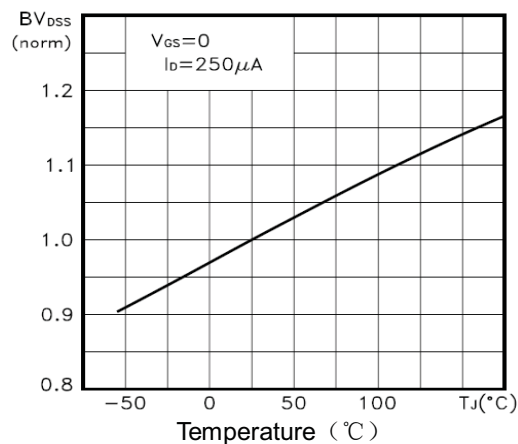


Figure4. ID vs Junction Temperature

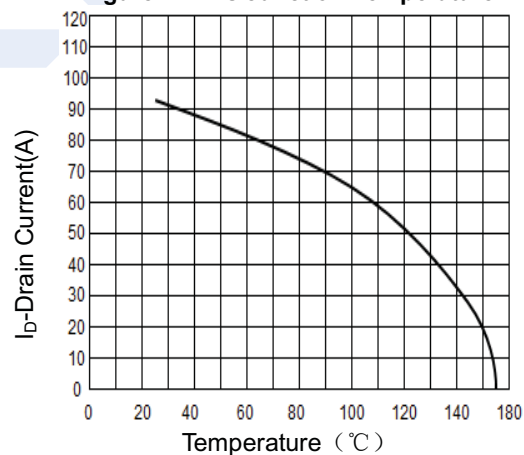


Figure5. VGS(th) vs Junction Temperature

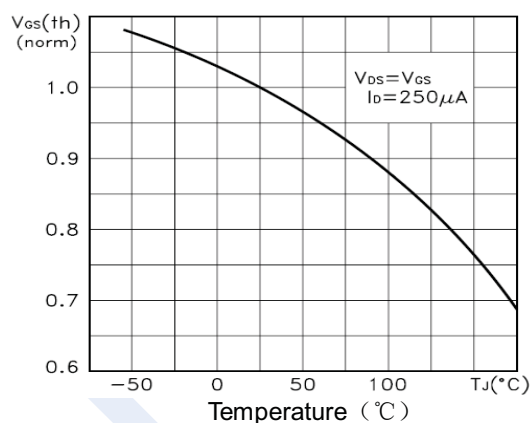
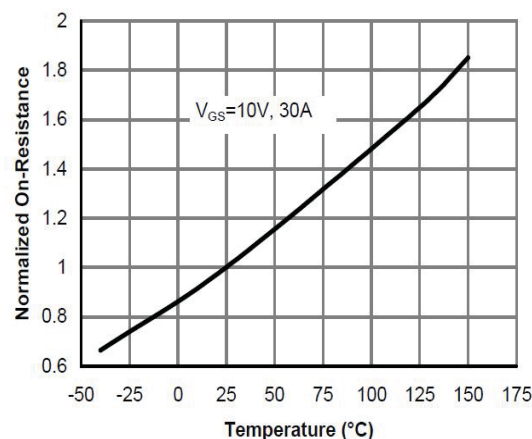


Figure6. Rdson Vs Junction Temperature



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■ Typical Characteristics

Figure7. Gate Charge

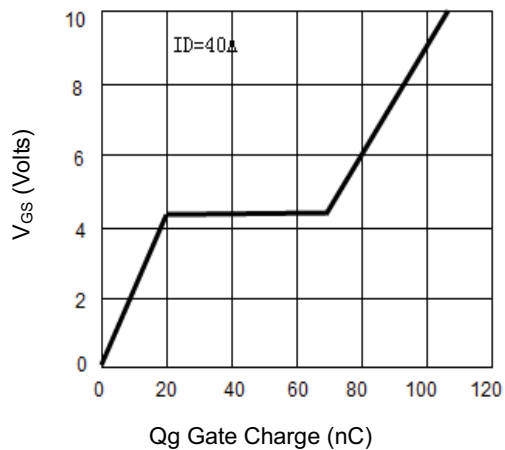


Figure8. Capacitance vs Vds

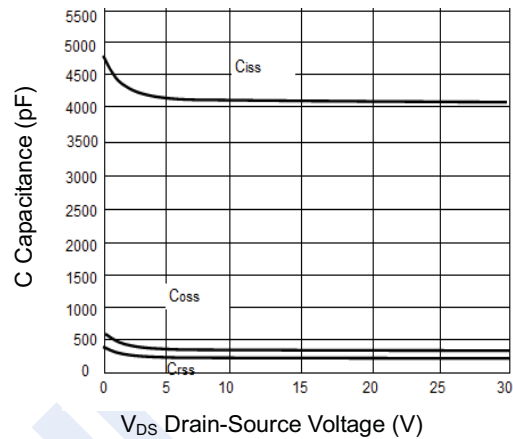


Figure9. Source- Drain Diode Forward

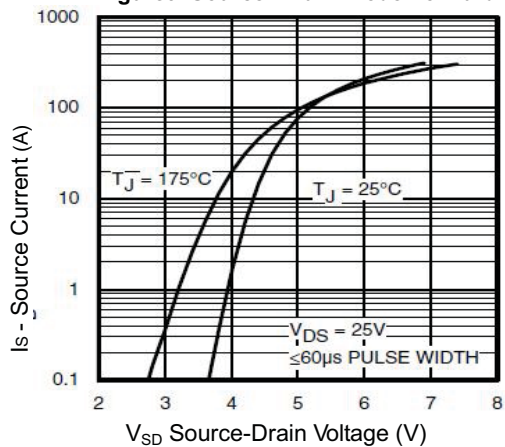


Figure10. Safe Operation Area

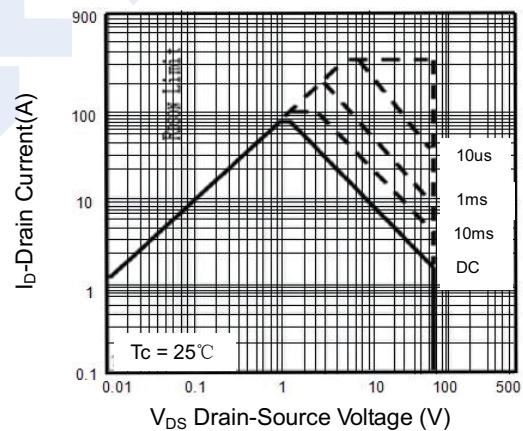


Figure11. Normalized Maximum Transient Thermal Impedance

