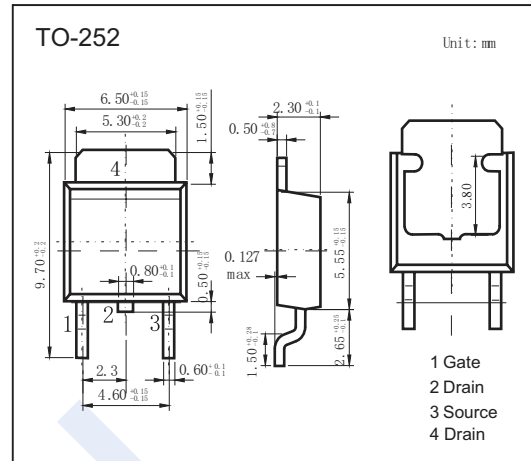
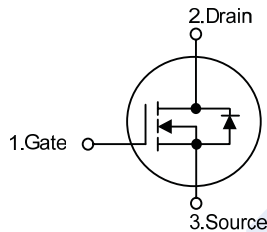


N-Channel MOSFET

NDT7N70

■ Features

- $V_{DS}(V) = 700V$
- $I_D = 7A$
- $R_{DS(ON)} < 1.2\Omega$ @ $V_{GS} = 10V, I_D = 3.5A$
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness

■ Absolute Maximum Ratings ($T_C = 25^\circ C$, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	700	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current	I_D	7.0	A
		4.7	
Pulsed Drain Current (Note 2)	I_{DM}	28	
Avalanche Energy, Single Pulsed (Note 3)	E_{AS}	40	mJ
Avalanche Energy, Repetitive, Limited by T_{JMAX}	E_{AR}	14.2	
Peak Diode Recovery dv/dt (Note 4)	dv/dt	4.5	V/ns
Power Dissipation	P_D	60	W
Thermal Resistance, Junction- to-Ambient	R_{thJA}	110	$^\circ C/W$
Thermal Resistance, Junction- to-Case	R_{thJC}	2.08	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating : Pulse width limited by T_J

3. $L=20mH$, $I_{AS}=2A$, $V_{DD}=50V$, $R_G=0\Omega$, Starting $T_J=25^\circ C$

4. $I_{SD} \leq 7.0A$, $di/dt \leq 100A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J=25^\circ C$

N-Channel MOSFET

NDT7N70

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250μA, V _{GS} =0V	700			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =700V, V _{GS} =0V			1	μA
		V _{DS} =560V, T _c =125°C			1	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Breakdown Voltage Temperature Coefficient	ΔB _V DSS/ΔT _J	I _D =250mA Referenced to 25°C		0.67		V/°C
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.5A			1.2	Ω
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz		340		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			6.5		
Total Gate Charge	Q _g	V _{DS} =50V, I _D =1.3A, I _G =100μA, V _{GS} =10V, (Note 1,2)		19		nC
Gate Source Charge	Q _{gs}			5		
Gate Drain Charge	Q _{gd}			5.2		
Turn-On DelayTime	t _{d(on)}	V _{DD} =30V, I _D =0.5A (Note 1,2)		50		ns
Turn-On Rise Time	t _r			70		
Turn-Off DelayTime	t _{d(off)}			140		
Turn-Off Fall Time	t _f			65		
Maximum Body-Diode Continuous Current	I _S				7.0	A
Source Current Pulsed	I _{SM}				28	
Diode Forward Voltage	V _{SD}	I _S =7.0A, V _{GS} =0V		0	1.4	V

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%
 2. Essentially independent of operating temperature

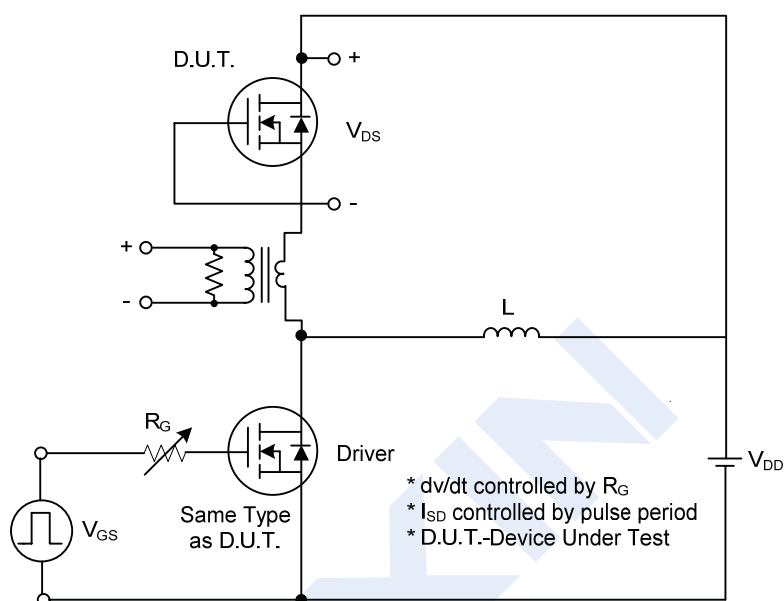
■ Marking

Marking	7N70 K****
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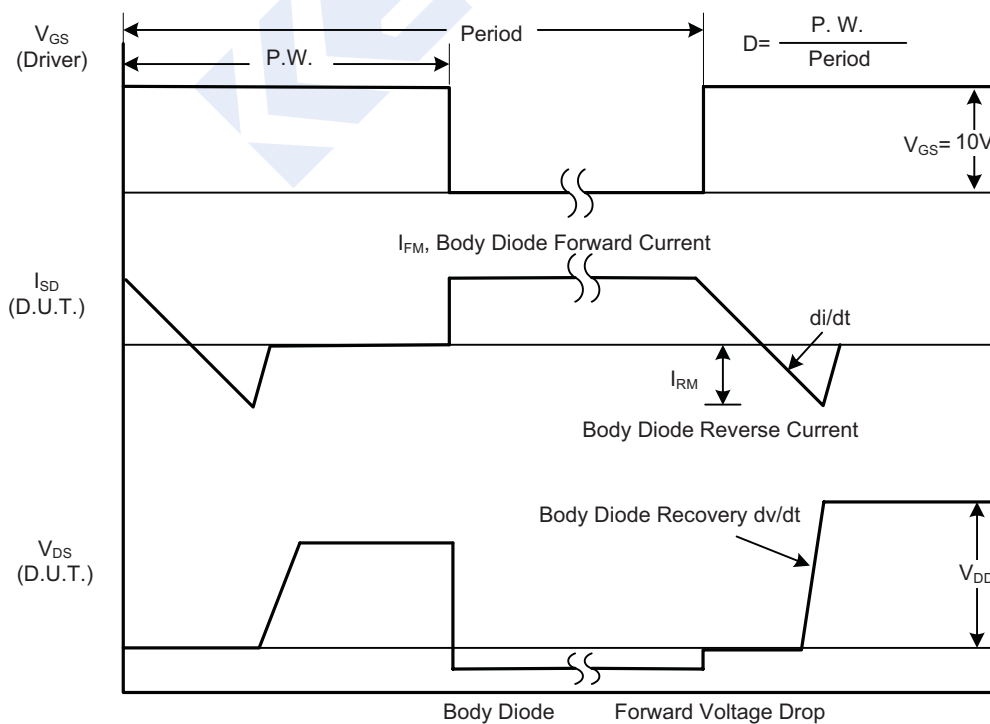
N-Channel MOSFET

NDT7N70

■ Test Circuits and Waveforms



Peak Diode Recovery dv/dt Test Circuit



Peak Diode Recovery dv/dt Waveforms

N-Channel MOSFET

NDT7N70

■ Test Circuits and Waveforms (Cont.)

