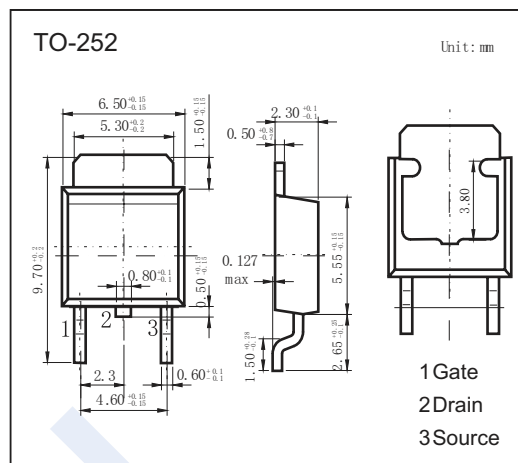
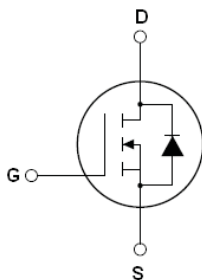


N-Channel Trench Power MOSFET

NDT90N04

■ Features

- $V_{DS} = 40V$; $I_D = 120A$
- $R_{DS(ON)} < 3.5m\Omega$ ($V_{GS} = 10V$)
- 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}	40	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	$T_c=25^\circ C$	120	A
		$T_c=100^\circ C$	85	
Pulsed Drain Current ^(Note 1)		375		
Power Dissipation	P_D	141	W	
Single Pulse Avalanche Energy ^(Note 2)	E_{AS}	784	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: $T_J=25^\circ C$, $V_{DD}=30V$, $V_G=10V$, $R_G=25\Omega$

N-Channel Trench Power MOSFET

NDT90N04

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	40			V
Zero Gate Voltage Drain Current ($T_c=25^\circ\text{C}$)	I_{DSS}	$V_{DS}=40\text{V}$, $V_{GS}=0\text{V}$			1	μA
Zero Gate Voltage Drain Current ($T_c=100^\circ\text{C}$)	I_{DSS}	$V_{DS}=40\text{V}$, $V_{GS}=0\text{V}$			5	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1		3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$, $I_D=12\text{A}$			4.5	$\text{m}\Omega$
Forward Transconductance	g_{FS}	$V_{DS}=10\text{V}$, $I_D=15\text{A}$	20			S
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=30\text{V}$, $f=1\text{MHz}$		5460		pF
Output Capacitance	C_{oss}			985		
Reverse Transfer Capacitance	C_{rss}			292		
Total Gate Charge	Q_g	$V_{DS}=30\text{V}$, $I_D=15\text{A}$, $V_{GS}=10\text{V}$		102		nC
Gate Source Charge	Q_{gs}			20		nC
Gate Drain Charge	Q_{gd}			49		nC
Turn-On DelayTime	$t_{d(on)}$			24		ns
Turn-On Rise Time	t_r	$V_{DS}=30\text{V}$, $R_L=2.5\Omega$		32		
Turn-Off DelayTime	$t_{d(off)}$	$V_{GS}=10\text{V}$, $R_G=3\Omega$		69		
Turn-Off Fall Time	t_f			31		
Body Diode Reverse Recovery Time ^(Note1)	t_{rr}	$I_F=15\text{A}$, $di/dt=100\text{A}/\mu\text{s}$		28		nC
Body Diode Reverse Recovery Charge ^(Note1)	Q_{rr}				39	
Maximum Body-Diode Continuous Current	I_S			110		A
Maximum Body-Diode Pulsed Current	I_{SM}			352		A
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}$, $V_{GS}=0\text{V}$			1.2	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 $\leq 300\mu\text{s}$, Duty Cycle $\leq 1.5\%$, Starting $T_j = 25^\circ\text{C}$

■ Marking

Marking	CSD40N35
---------	----------