



UDN302

Power MOSFET

P-CHANNEL 2.5V SPECIFIED POWERTRENCH MOSFET

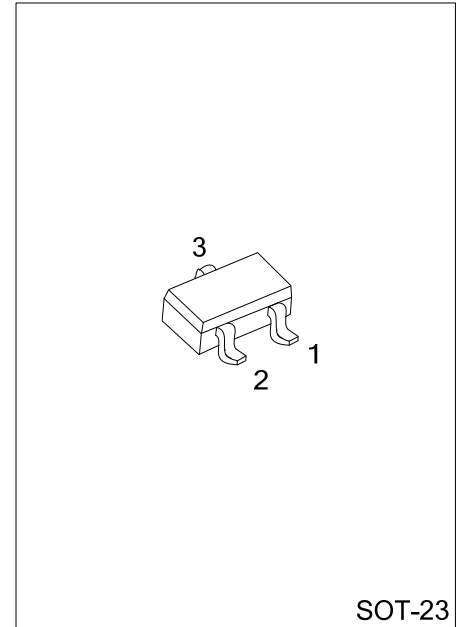
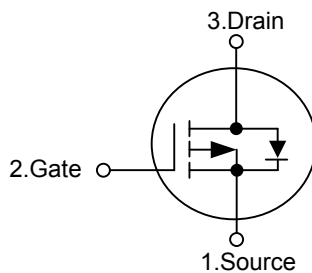
DESCRIPTION

The **UDN302** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)}=55m\Omega$ @ $V_{GS}=-4.5V$
- * $R_{DS(ON)}=80m\Omega$ @ $V_{GS}=-2.5V$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



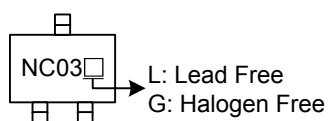
SOT-23

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UDN302L-AE3-R	UDN302G-AE3-R	SOT-23	S	G	D	Tape Reel

	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE3: SOT-23
	(3)Lead Plating	(3) G: Halogen Free, L: Lead Free

MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-2.4	A
Pulsed Drain Current	I_{DM}	-10	A
Maximum Power Dissipation	P_D	0.5	W
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note: 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.

■ THERMAL DATA

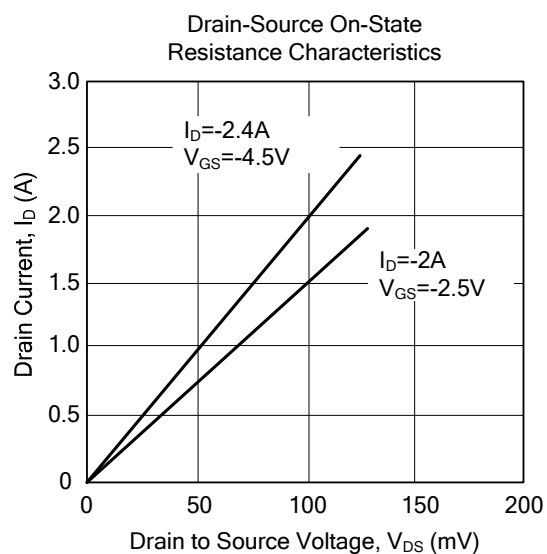
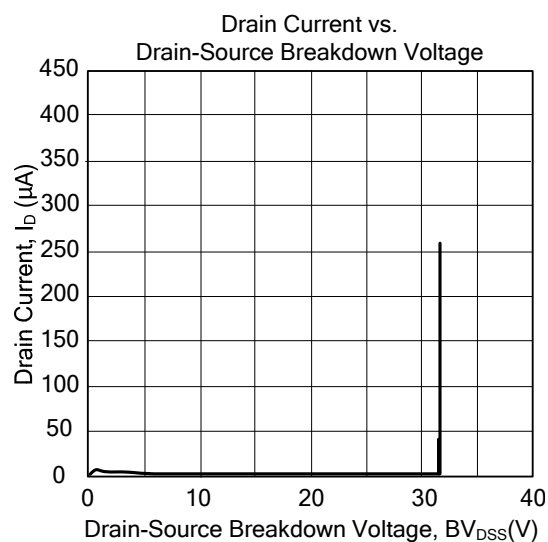
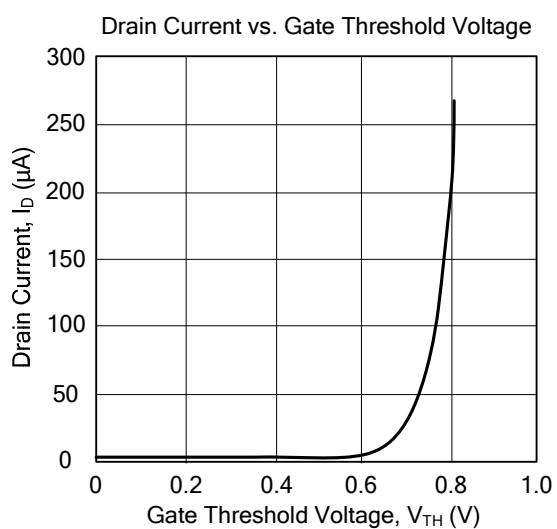
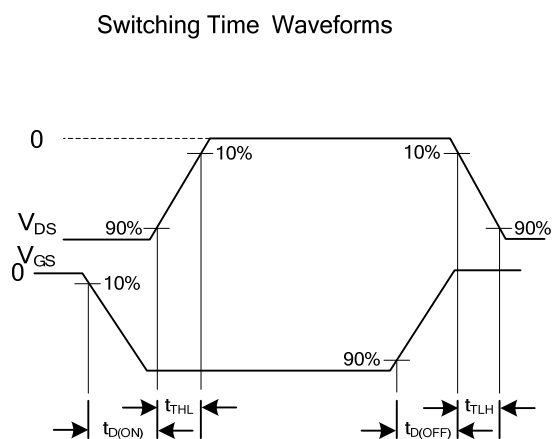
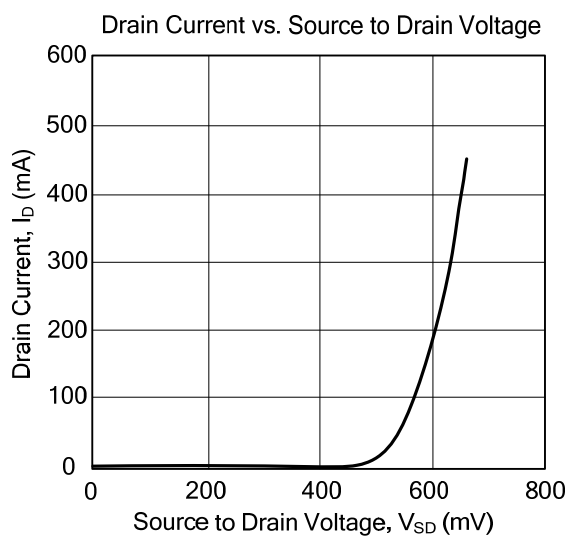
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}			250	$^{\circ}\text{C}/\text{W}$
Junction-to-Case	θ_{JC}			75	$^{\circ}\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	I _D =-250μA, Referenced to 25°C		-12		mV/°C
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS(Note)						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-0.6	-1.0	-1.5	V
Gate Threshold Voltage Temperature Coefficient	ΔV _{GS(TH)} /ΔT _J	I _D =-250 μA, Referenced to 25°C		3		mV/°C
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-2.4A V _{GS} =-2.5V, I _D =-2A		44 64	55 80	mΩ
On-State Drain Current	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} =-5V	-10			A
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-2.4A		10		S
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =-10V, V _{GS} =0V, f=1.0MHz		882		pF
Output Capacitance	C _{OSS}			211		pF
Reverse Transfer Capacitance	C _{RSS}			112		pF
SWITCHING PARAMETERS (Note)						
Total Gate Charge	Q _G	V _{DS} =-10V, I _D =-2.4A, V _{GS} =-4.5V		9	14	nC
Gate Source Charge	Q _{GS}			2		nC
Gate Drain Charge	Q _{GD}			3		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =-10V, I _D =-1A, V _{GS} =-4.5V R _G =6Ω		13	23	ns
Turn-ON Rise Time	t _R			11	20	ns
Turn-OFF Delay Time	t _{D(OFF)}			25	40	ns
Turn-OFF Fall-Time	t _F			15	27	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-0.42A (Note)		-0.7	-1.2	V
Maximum Body-Diode Continuous Current	I _S				-0.42	A

Note: Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$

■ TYPICAL CHARACTERISTICS



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