



UT136N03

Preliminary

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

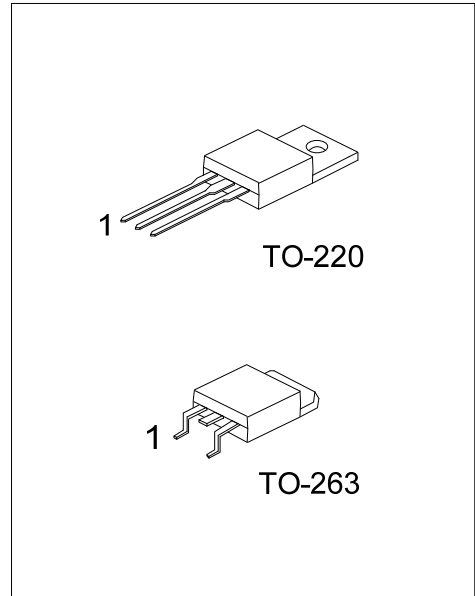
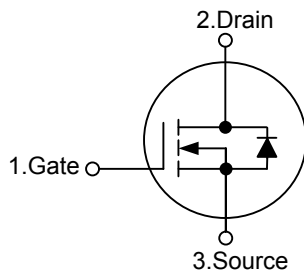
DESCRIPTION

The **UT136N03** 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

- * $V_{DS}(V) = 30\text{ V}$
- * $I_D = 136\text{ A}$
- * $R_{DS(ON)} = 4.5\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- * $R_{DS(ON)} = 5.6\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT136N03L-TA3-R	UT136N03G-TA3-T	TO-220	G	D	S	Tube
UT136N03L-TQ2-T	UT136N03G-TQ2-T	TO-263	G	D	S	Tube
UT136N03L-TQ2-R	UT136N03G-TQ2-R	TO-263	G	D	S	Tape Reel

UT136N03L-TA3-R	(1)Packing Type	(1) R: Tape Reel, T: Tube
	(2)Package Type	(2) TA3: TO-220, TQ2: TO-263
	(3)Lead Free	(3) G: Halogen Free, L: Lead Free

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	136	A
Pulsed Drain Current (Note1)	I_{DM}	400	A
Single Pulsed Avalanche Energy (Note4)	E_{AS}	875	mJ
Power Dissipation	P_D	100	W
Junction Temperature	T_J	+175	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +175	$^\circ\text{C}$

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	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	1.4	$^\circ\text{C/W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250 μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30 V, V _{GS} =0 V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0 V, V _{GS} = ±20 V			±100	nA
ON CHARACTERISTICS (Note2)						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250 μA	1		3	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10 V, I _D =40 A		3.6	4.5	mΩ
		V _{GS} =4.5 V, I _D =40 A			5.6	
DYNAMIC PARAMETERS (Note3)						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1.0MHz		3800		pF
Output Capacitance	C _{OSS}			800		
Reverse Transfer Capacitance	C _{RSS}			600		
SWITCHING PARAMETERS (Note3)						
Total Gate Charge	Q _G	V _{DS} =15V, V _{GS} =5V, I _D =16A		60	72	nC
Gate Source Charge	Q _{GS}			20.8		
Gate Drain Charge	Q _{GD}			22		
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =15V, I _D =1A, R _{GEN} =6Ω V _{GS} =10 V		25.7	50	ns
Turn-ON Rise Time	t _R			10	20	
Turn-OFF Delay Time	t _{D(OFF)}			128	200	
Turn-OFF Fall-Time	t _F			34	70	
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _S =20 A, V _{GS} =0 V			1.5	V
Drain-Source Diode Forward Current	I _S				90	A

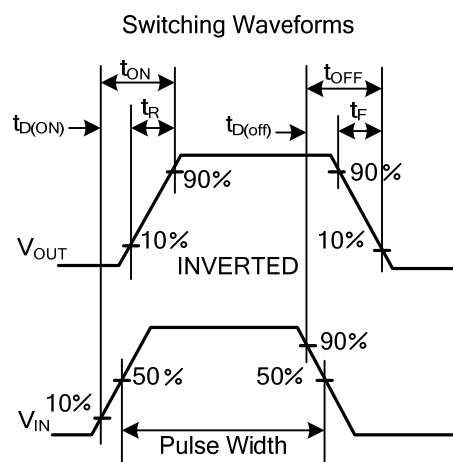
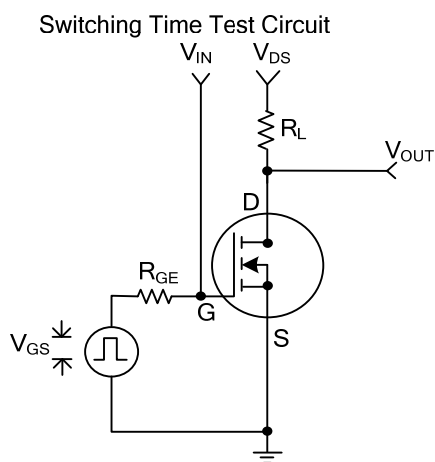
Note : 1. Pulse width limited by maximum junction temperature

2. Pulse Test : Pulse Width < 300 μs , Duty Cycle < 2%.

3. Guaranteed by design, not subject to production testing.

4. L = 0.5mH, $I_{AS} = 35\text{ A}$, $V_{DD} = 25\text{ V}$, $R_G = 25\text{ }\Omega$, Starting $T_J = 25^\circ\text{C}$.

■ TEST CIRCUIT AND WAVEFORM



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