



UT108N03

Power MOSFET

30V, 108A N-CHANNEL POWER MOSFET

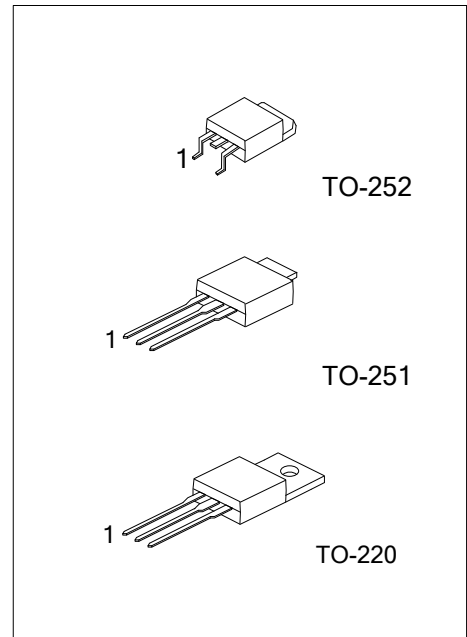
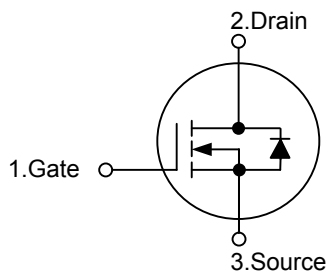
DESCRIPTION

As advanced N-channel level power MOSFET, the **UT108N03** is produced using UTC's advanced trench technology, which has been specially tailored to minimize the on-resistance and maintain low gate charge for superior switching performance.

FEATURES

- * $R_{DS(ON)} = 5.3m\Omega @ V_{GS} = 10V$
- * Low Capacitance
- * Optimized Gate Charge
- * Fast Switching Capability
- * Avalanche Energy Specified

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT108N03L-TA3-T	UT108N03G-TA3-T	TO-220	G	D	S	Tube
UT108N03L-TM3-T	UT108N03G-TM3-T	TO-251	G	D	S	Tube
UT108N03L-TN3-R	UT108N03G-TN3-R	TO-252	G	D	S	Tape Reel
UT108N03L-TN3-T	UT108N03G-TN3-T	TO-252	G	D	S	Tube

Note: Pin Assignment: G: Gate D: Drain S: Source

UT108N03L-TA3-T	(1)Packing Type (2)Package Type (3)Lead Free	(1) R: Tape Reel, T: Tube (2) TA3: TO-220, TM3: TO-251, TN3: TO-252 (3) G: Halogen Free, L: Lead Free
-----------------	--	---

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	I_D	108	A
Pulsed Drain Current (Note 2)	I_{DM}	432	A
Avalanche Energy (Note 3)	E_{AS}	580	mJ
Power Dissipation	TO-220	107	W
	TO-251/TO-252	60	
Junction Temperature	T_J	+150	$^\circ\text{C}$
Strong Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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. $t_p \leq 10\mu\text{s}$, pulsed, $T_A = 25^\circ\text{C}$

3. $V_{GS} = 10\text{V}$, $T_J = 25^\circ\text{C}$, $I_D = 35\text{A}$, $V_S \leq 25\text{V}$, $t_p = 0.25\text{ms}$, $R_{GS} = 50\Omega$

■ THERMAL DATA

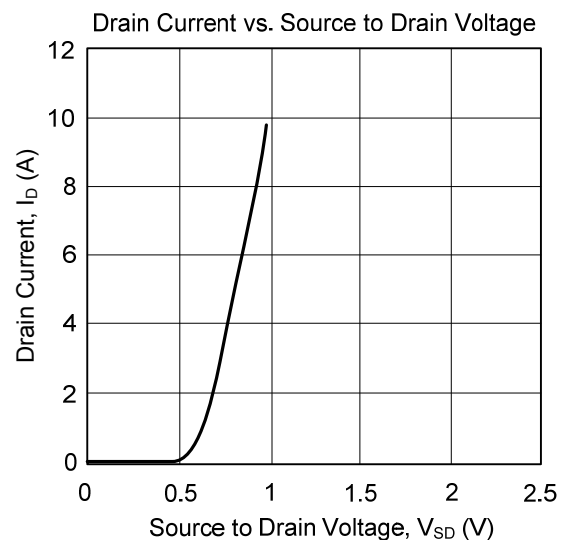
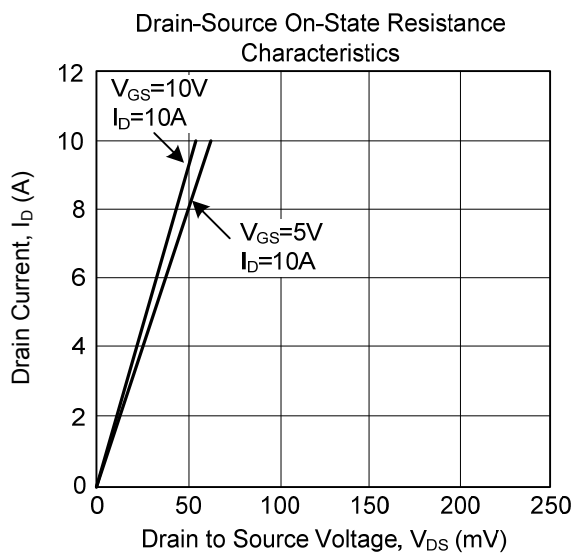
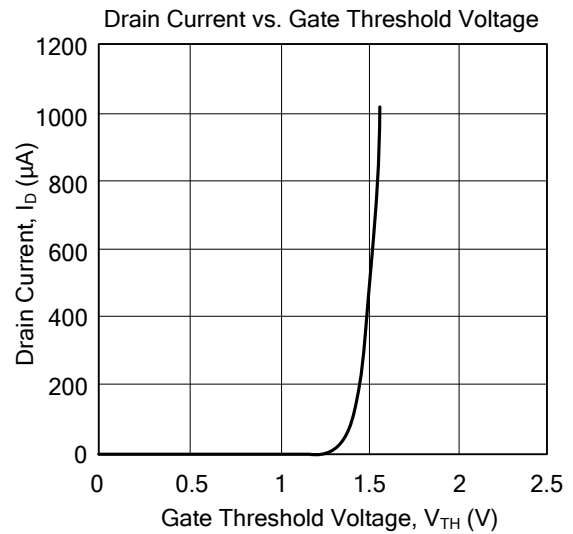
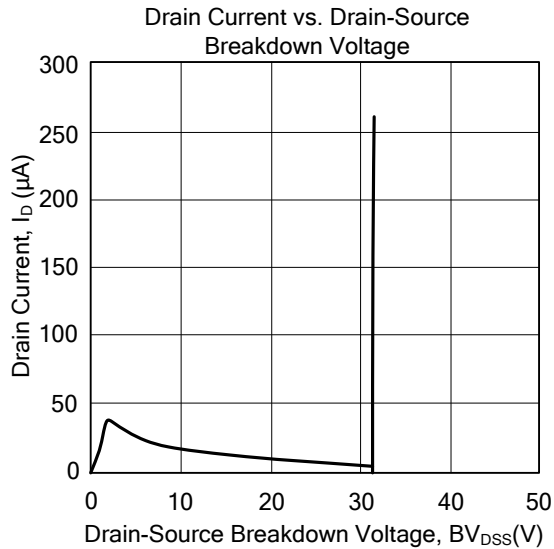
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	62.5	$^\circ\text{C/W}$
	TO-251/TO-252	100	$^\circ\text{C/W}$
Junction to Case	TO-220	1.4	$^\circ\text{C/W}$
	TO-251/TO-252	2.5	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, 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	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V		0.05	1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V		0.02	100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =1mA	1		3	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =25A		4.2	5.3	mΩ
		V _{GS} =5V, I _D =25A			6.6	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		3200		pF
Output Capacitance	C _{OSS}			580		pF
Reverse Transfer Capacitance	C _{RSS}			400		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DD} =15V, V _{GS} =5V, I _D =40A		56		nC
Gate Source Charge	Q _{GS}			16		nC
Gate Drain Charge	Q _{GD}			14		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =15V, R _G =10Ω, V _{GS} =5V, R _D =0.6Ω		24		ns
Turn-ON Rise Time	t _R			102		ns
Turn-OFF Delay Time	t _{D(OFF)}			53		ns
Turn-OFF Fall-Time	t _F			54		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _S =108A, V _{GS} =0 V			1.25	V
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}	(Note)			432	A
Body Diode Reverse Recovery Time	t _{rr}	I _S =20A, dI _S /dt=-100A/μs,		34		ns
Body Diode Reverse Recovery Charge	Q _{RR}	V _{GS} =0V		27		nC

Note: $t_p \leq 10\mu\text{s}$, pulsed

■ TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.