



UT108N03

Power MOSFET

30V, 108A N-CHANNEL POWER MOSFET

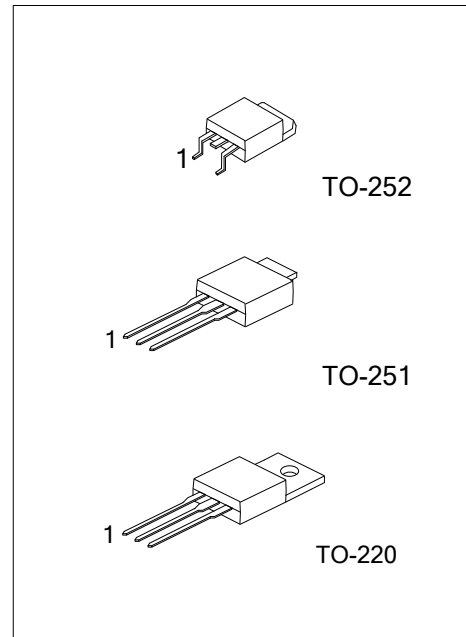
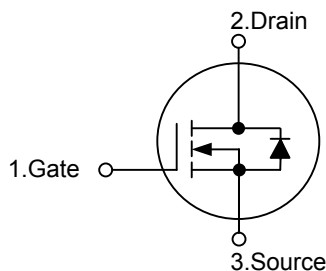
DESCRIPTION

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
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■ ABSOLUTE MAXIMUM RATINGS (T_C =25°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	P _D	107	W
	TO-251/TO-252		60	
Junction Temperature		T _J	+150	°C
Strong Temperature		T _{STG}	-55 ~ +150	°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 ≤ 10μs, pulsed, T_A = 25°C

3. V_{GS} = 10V, T_J = 25°C, I_D = 35A, V_S ≤ 25V, t_p = 0.25ms, R_{GS} = 50Ω

■ THERMAL DATA

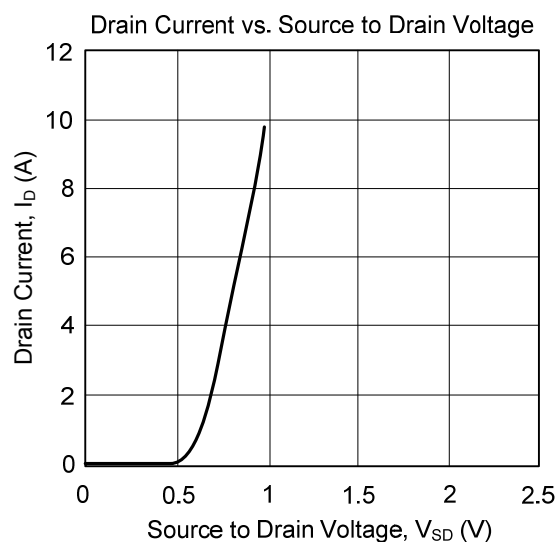
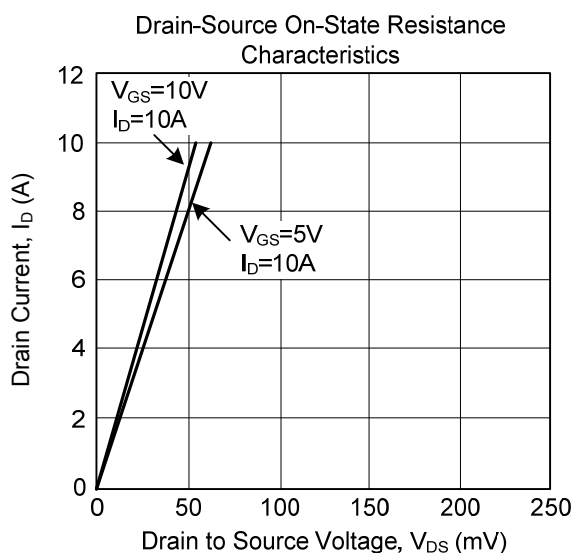
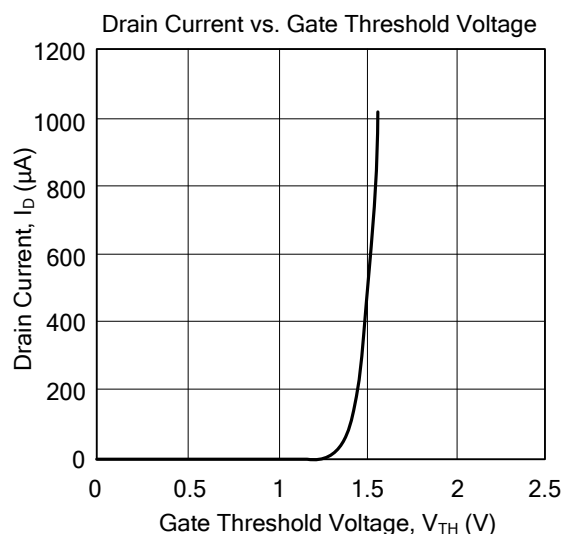
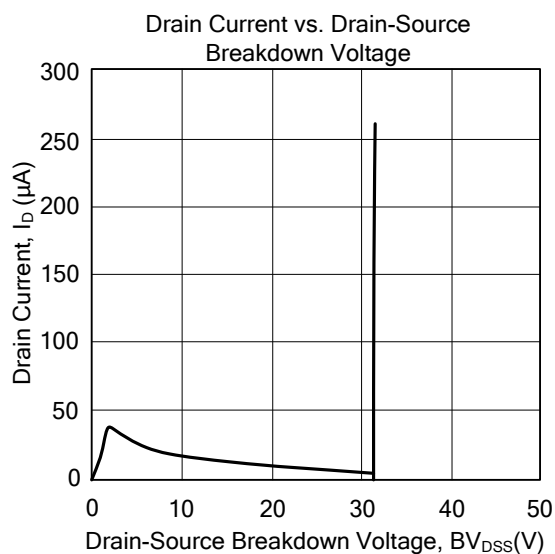
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ _{JA}	62.5	°C /W
	TO-251/TO-252		100	°C /W
Junction to Case	TO-220	θ _{JC}	1.4	°C /W
	TO-251/TO-252		2.5	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J =25°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 ≤ 10μs, pulsed

TYPICAL CHARACTERISTICS



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