



UTT108N03

Power MOSFET

30V, 108A N-CHANNEL POWER MOSFET

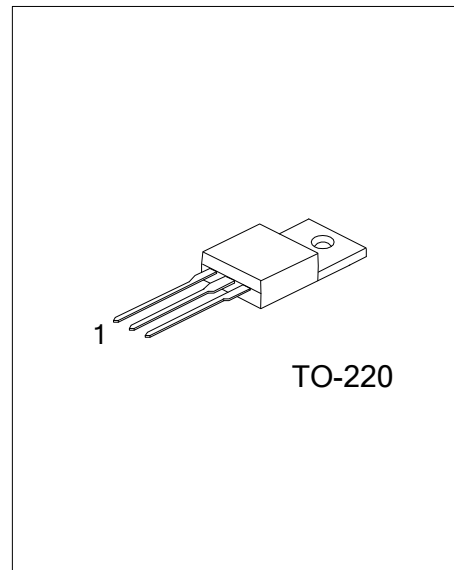
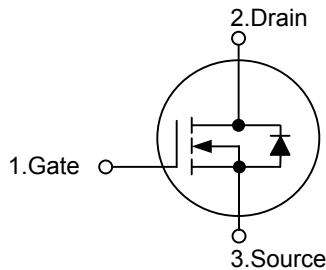
DESCRIPTION

As advanced N-channel level power MOSFET, the **UTT108N03** 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

- * $R_{DS(ON)} = 6.0m\Omega @ V_{GS} = 10V$
- * 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	
UTT108N03L-TA3-T	UTT108N03G-TA3-T	TO-220	G	D	S	Tube

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

UTT108N03L-TA3-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube (2) TA3: TO-220 (3) G: Halogen Free, L: Lead Free
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■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$, unless otherwise specified)

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	P_D	107	W
Junction Temperature	T_J	+175	$^\circ\text{C}$
Strong Temperature	T_{STG}	-55 ~ +175	$^\circ\text{C}$

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

■ THERMAL DATA

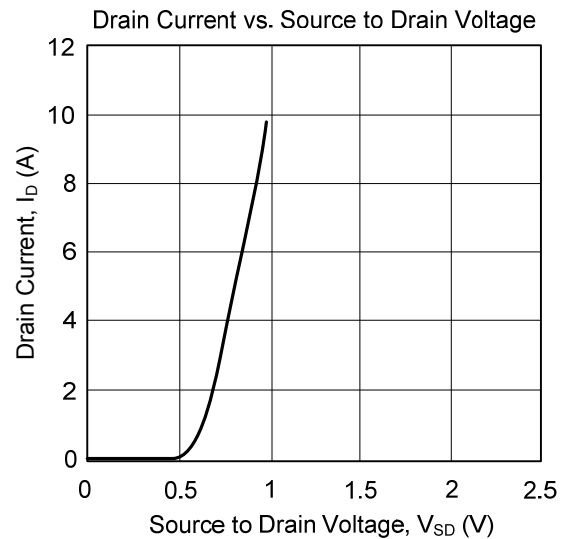
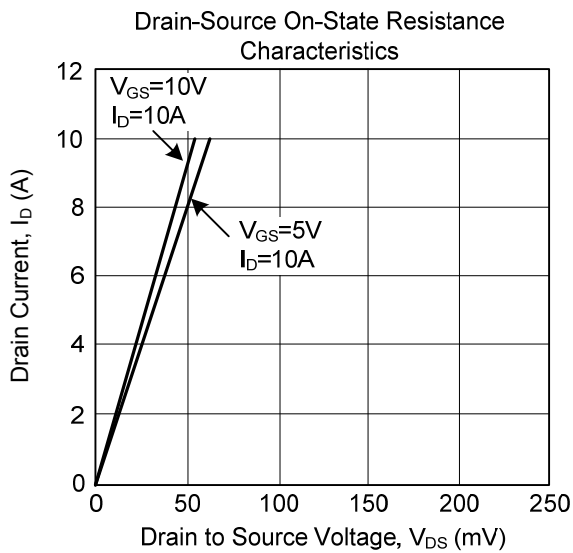
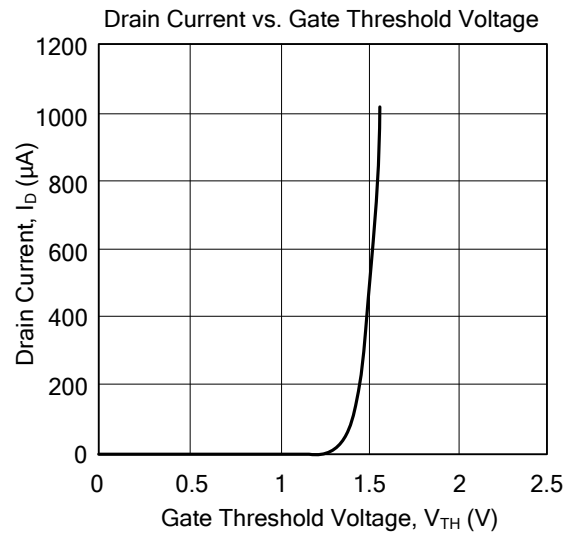
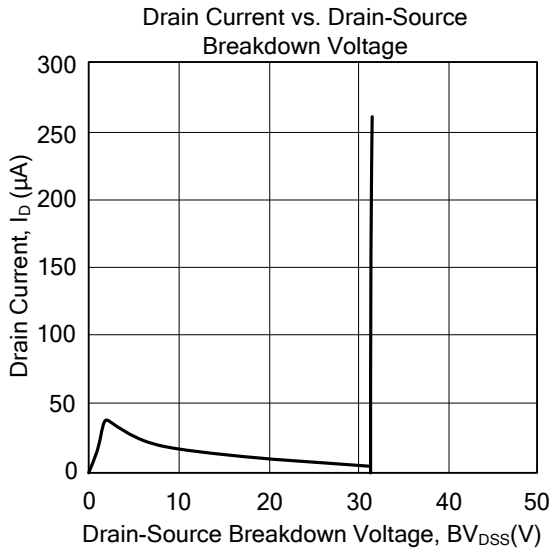
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	1.4	$^\circ\text{C/W}$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{V}$, $I_D = 250\mu\text{A}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 30\text{V}$, $V_{GS} = 0\text{V}$		0.05	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$		0.02	100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}$, $I_D = 1\text{mA}$	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10\text{V}$, $I_D = 25\text{A}$		4.2	5.3	m Ω
		$V_{GS} = 5\text{V}$, $I_D = 25\text{A}$			6.6	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1.0\text{MHz}$		3200		pF
Output Capacitance	C_{OSS}			580		pF
Reverse Transfer Capacitance	C_{RSS}			400		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DD} = 15\text{V}$, $V_{GS} = 5\text{V}$, $I_D = 40\text{A}$		56		nC
Gate Source Charge	Q_{GS}			16		nC
Gate Drain Charge	Q_{GD}			14		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD} = 15\text{V}$, $R_G = 10\Omega$, $V_{GS} = 5\text{V}$, $R_D = 0.6\Omega$		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}	$I_S = 108\text{A}$, $V_{GS} = 0\text{V}$			1.25	V
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}	(Note)			432	A
Body Diode Reverse Recovery Time	t_{RR}	$I_S = 20\text{A}$, $di_S/dt = -100\text{A}/\mu\text{s}$, $V_{GS} = 0\text{V}$		34		ns
Body Diode Reverse Recovery Charge	Q_{RR}			27		nC

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

TYPICAL CHARACTERISTICS



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