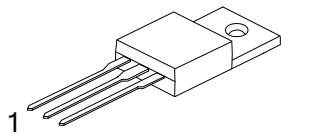
UTT108N03

Power MOSFET

30V, 108A N-CHANNEL POWER MOSFET



TO-220

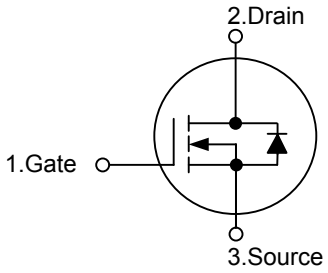
■ DESCRIPTION

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

* $R_{DS(ON)}$ = 6.0mΩ @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°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	°C
Strong Temperature	T_{STG}	-55 ~ +175	°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. $t_P \leq 10\mu s$, pulsed, Ta=25°C
3. V_{GS}=10V, T_J=25°C, ID=35A, $V_S \leq 25V$, t_p=0.25ms, R_{GS}=50Ω

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	°C /W
Junction to Case	θ_{JC}	1.4	°C /W

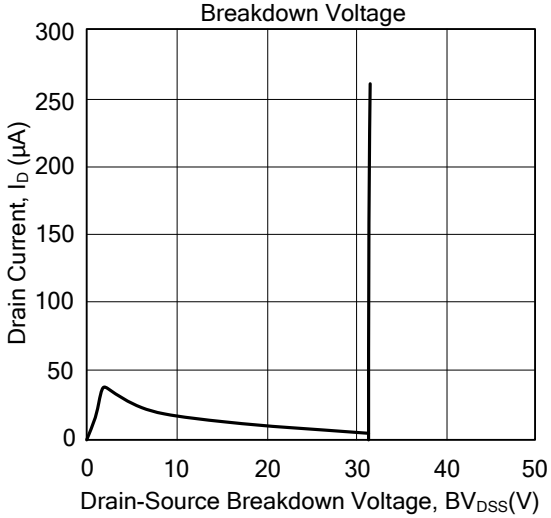
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

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, V_{GS}=0V		34		ns
Body Diode Reverse Recovery Charge	Q_{RR}			27		nC

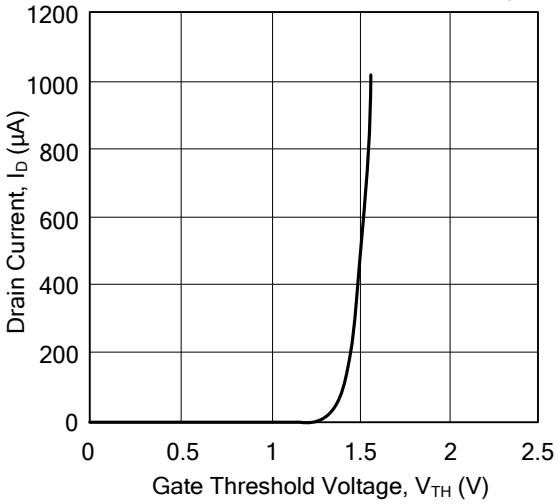
Note: $t_P \leq 10\mu s$, pulsed

■ TYPICAL CHARACTERISTICS

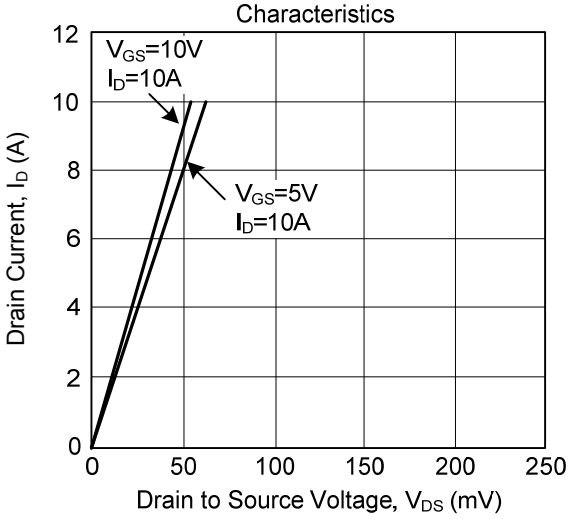
Drain Current vs. Drain-Source Breakdown Voltage



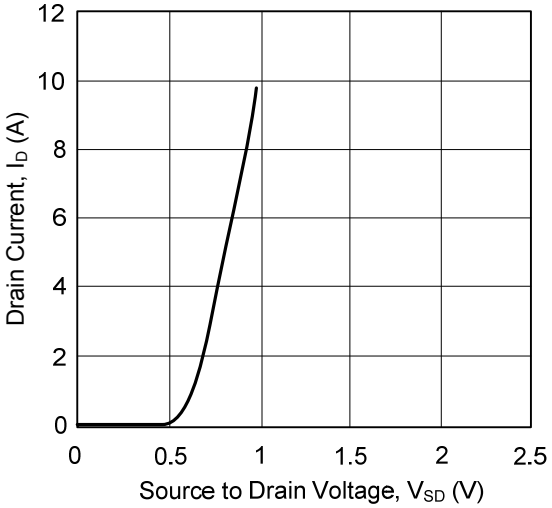
Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Drain Current vs. Source to Drain Voltage



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