



UT108N03

Power MOSFET

30V, 108A N-CHANNEL POWER MOSFET

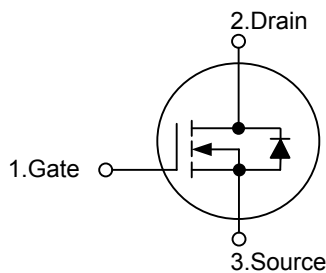
DESCRIPTION

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

- * $R_{DS(ON)} < 5.3m\Omega$ @ $V_{GS} = 10V$, $I_D = 25A$
- * Low Capacitance
- * Optimized Gate Charge
- * Fast Switching Capability
- * Avalanche Energy Specified

SYMBOL



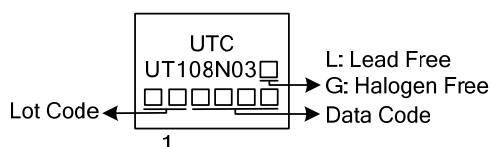
ORDERING INFORMATION

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-TND-R	UT108N03G-TND-R	TO-252D	G	D	S	Tape Reel

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

	(1) R: Tape Reel, T: Tube
	(2) TA3: TO-220, TM3: TO-251, TN3: TO-252 TND: TO-252D
	(3) L: Lead Free, G: Halogen Free and Lead Free

MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$, 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	TO-220	P _D	107	W
	TO-251/TO-252		60	
	TO-252D			
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. $t_P \leq 10\mu\text{s}$, 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

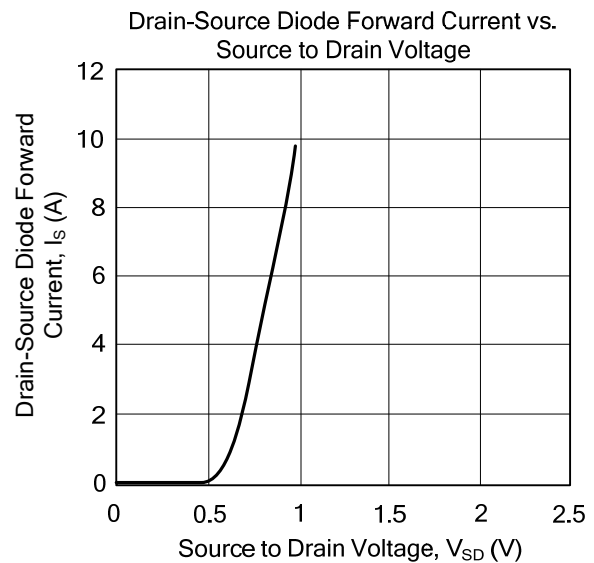
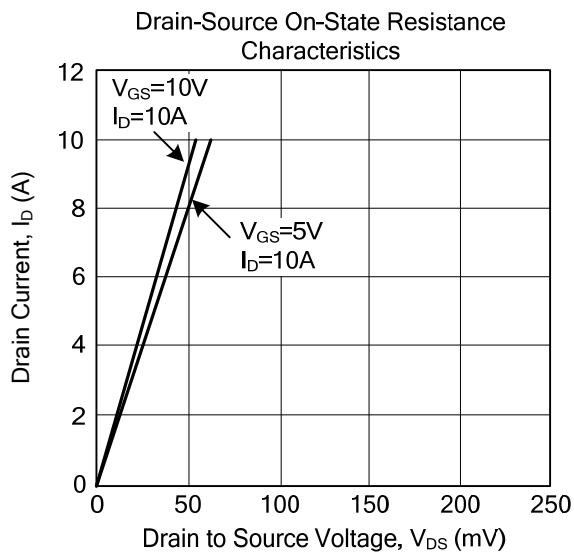
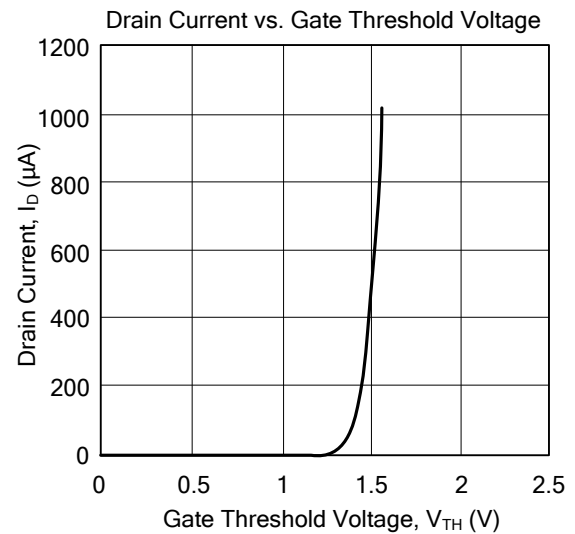
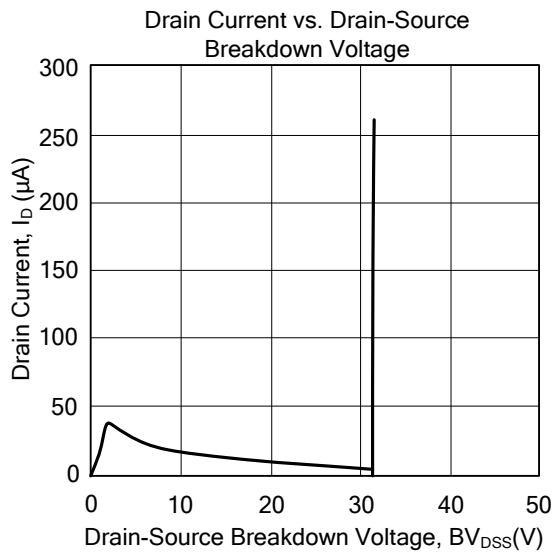
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	$^{\circ}\text{C/W}$
	TO-251/TO-252		100	$^{\circ}\text{C/W}$
	TO-252D			
Junction to Case	TO-220	θ_{JC}	1.4	$^{\circ}\text{C/W}$
	TO-251/TO-252		2.5	$^{\circ}\text{C/W}$
	TO-252D			

■ 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		2900		pF
Output Capacitance	C _{OSS}			500		pF
Reverse Transfer Capacitance	C _{RSS}			350		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =15V, R _G =10Ω, V _{GS} =5V, R _D =0.6Ω, I _D =1A		60		ns
Turn-ON Rise Time	t _R			100		ns
Turn-OFF Delay Time	t _{D(OFF)}			650		ns
Turn-OFF Fall-Time	t _F			300		ns
Total Gate Charge	Q _G	V _{DD} =15V, V _{GS} =5V, I _D =40A		310		nC
Gate Source Charge	Q _{GS}			50		nC
Gate Drain Charge	Q _{GD}			90		nC
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: $t_P \leq 10\mu s$, pulsed

TYPICAL CHARACTERISTICS



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