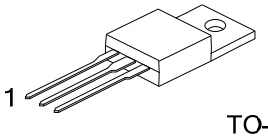
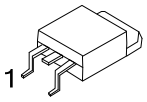
60A, 100V N-CHANNEL ENHANCEMENT MODE POWER MOSFET TRANSISTOR



TO-220



TO-252

■ DESCRIPTION

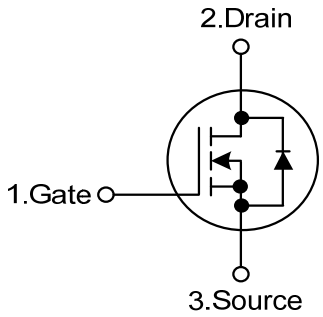
The UTC **UTT60N10** is an N-channel enhancement power MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **UTT60N10** is suitable for motor control, AC-DC or DC-DC converters and audio amplifiers, etc.

■ FEATURES

* $R_{DS(ON)}$<24mΩ @ V_{GS}=10V,I_D=30A
* High Switching Speed
* High Current Capacity
* Low Gate Charge(typical 50nC)

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT60N10L-TA3-T	UTT60N10G-TA3-T	TO-220	G	D	S	Tube
UTT60N10L-TN3-T	UTT60N10G-TN3-T	TO-252	G	D	S	Tube
UTT60N10L-TN3-R	UTT60N10G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT60N10L-TA3-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube (2) TA3: TO-220, TN3: TO-252 (3) L: Lead Free, G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	±25	V
Drain Current	Continuous	I_D	60	A
	Pulsed	I_{DM}	100	A
Avalanche Energy	Single Pulsed	E_{AS}	270	mJ
Power Dissipation	TO-220	P_D	100	W
	TO-252		114	W
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 ~ 150	°C

Note: 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.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	°C/W
	TO-252		100	
Junction to Case	TO-220	θ_{JC}	1.25	°C/W
	TO-252		2.5	

■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	100			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate- Source Leakage Current	Forward	I_{GSS}	V_{GS}=+25V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-25V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1.0		3.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=30A		18	24	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		1450	1900	pF
Output Capacitance		C_{OSS}			520	680	pF
Reverse Transfer Capacitance		C_{RSS}			120	155	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=10V, V_{DS}=80V, I_D=30A,		50	65	nC
Gate to Source Charge		Q_{GS}			9.3		nC
Gate to Drain Charge		Q_{GD}			25		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{DD}=30V, I_D=1A, R_G=50Ω, V_{GS}=10V		16.5	45	ns
Rise Time		t_R			200	410	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			70	150	ns
Fall-Time		t_F			95	200	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S		60			A
Maximum Body-Diode Pulsed Current		I_{SM}		100			A
Drain-Source Diode Forward Voltage		V_{SD}	I_S=30A, V_{GS}=0V			1.5	V