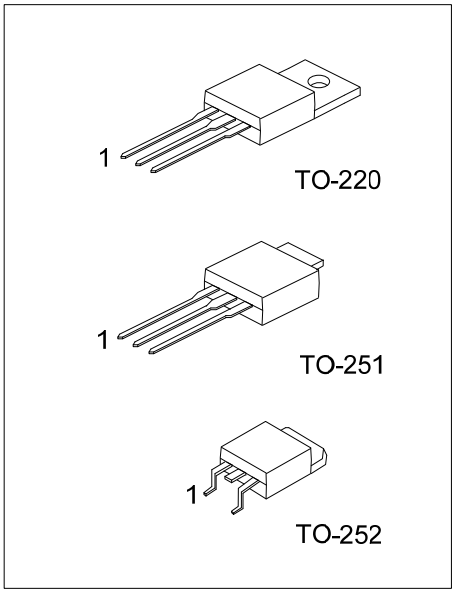
UTT30P06

Power MOSFET

60V, 30A P-CHANNEL POWER MOSFET



■ DESCRIPTION

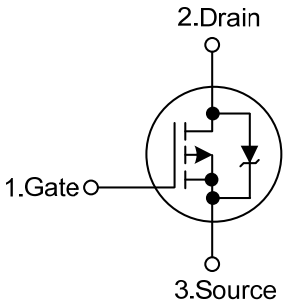
The UTC **UTT30P06** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance. It can also withstand high energy in the avalanche.

The UTC **UTT30P06** is suitable for low voltage and high speed switching applications

■ FEATURES

* $R_{DS(ON)}$ < 0.08Ω @ V_{GS}= -10V, I_D= -15A
* High Switching Speed

■ SYMBOL



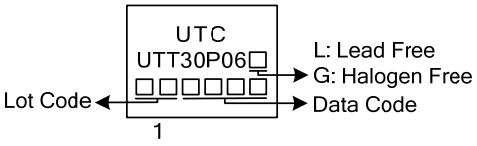
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT30P06L-TA3-T	UTT30P06G-TA3-T	TO-220	G	D	S	Tube
UTT30P06L-TM3-T	UTT30P06G-TM3-T	TO-251	G	D	S	Tube
UTT30P06L-TN3-R	UTT30P06G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT30P06L-TA3-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TM3: TO-251, TN3: TO-252 (3) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V_{DSS}	-60	V
Drain-Gate Voltage (R_{GS}=1.0 MΩ)			V_{DGR}	-60	V
Gate-Source Voltage	Continuous		V_{GSS}	±15	V
	Non−repetitive (t_p≤10ms)		V_{GSM}	±25	V
Drain Current	Continuous	T_C=25°C	I_D	-30	A
		T_C=100°C	I_D	-19	A
	Pulsed (t_p≤10μs)		I_{DM}	-105	A
Power Dissipation	TO-220		P_D	104	W
	TO-251/TO-252			39	W
Derate Above 25°C	TO-220			0.83	W/°C
	TO-251/TO-252			0.3125	W/°C
Junction Temperature			T_J	+175	°C
Storage 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. When surface mounted to an FR4 board using the minimum recommended pad size.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	$θ_{JA}$	62.5	°C/W
	TO-251/TO-252		110	°C/W
Junction to Case	TO-220	$θ_{JC}$	1.2	°C/W
	TO-251/TO-252		3.2	°C/W

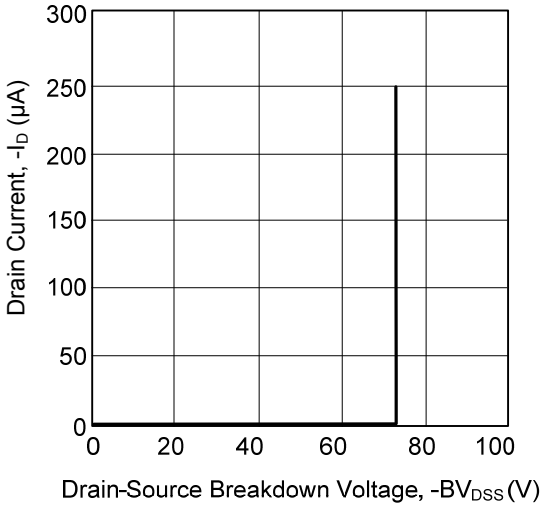
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=-0.25mA, V_{GS}=0V	-60			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=-60V, V_{GS}=0V			-10	μA
Gate- Source Leakage Current	Forward	I_{GSS}	V_{GS}=+15V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-15V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS (Note 1)							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.2		-2.4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=-10V, I_D=-15A		0.027	0.08	Ω
Drain-Source On-Voltage		$V_{DS(ON)}$	V_{GS}=-10V, I_D=-30A		-2.0	-2.9	V
			V_{GS}=-10V, I_D=-15A, T_J=150°C			-2.8	V
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=-25V, f=1.0MHz		1320	2190	pF
Output Capacitance		C_{OSS}			260	730	pF
Reverse Transfer Capacitance		C_{RSS}			190	310	pF
SWITCHING PARAMETERS (Note 2)							
Turn-ON Delay Time		$t_{D(ON)}$	V_{GS}=-10V, V_{DD}=-30V, I_D=-1A, R_G=9.1Ω		60	80	ns
Rise Time		t_R			70	90	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			535	600	ns
Fall-Time		t_F			170	190	ns
Gate Charge		Q_G	V_{GS}=-10V, V_{DS}=-48V, I_D=-30A		260	300	nC
		Q_{GS}			35		nC
		Q_{GD}			5		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V_{SD}	I_S=-30A, V_{GS}=0V		-2.3	-3.0	V
Body Diode Reverse Recovery Time		t_{RR}	I_S=-30A, V_{GS}=0V, dI_S/dt=-100A/μs		175		ns
Body Diode Reverse Recovery Charge		Q_{RR}			0.965		μC

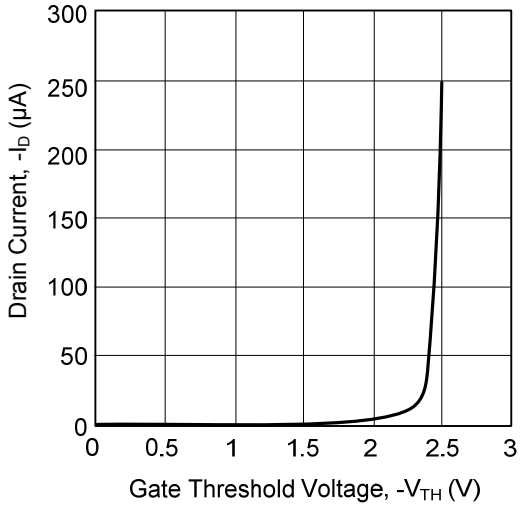
Notes: 1. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.
2. Switching characteristics are independent of operating junction temperature.

■ TYPICAL CHARACTERISTICS

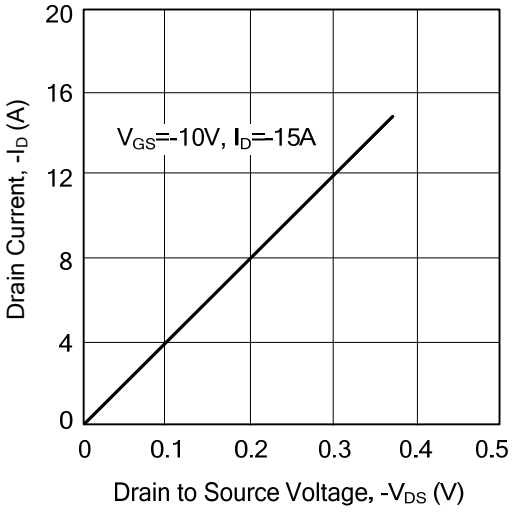
Drain Current vs. Drain-Source Breakdown Voltage



Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Drain-Source Diode Forward Current vs. Drain-Source Diode Forward Voltage