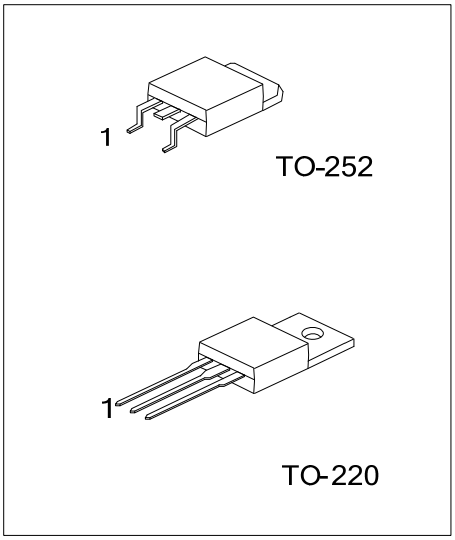
UTT25P10

Preliminary | ***Power MOSFET***

25A, 100V P-CHANNEL POWER MOSFET



■ DESCRIPTION

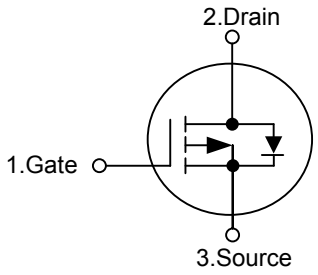
The UTC **UTT25P10** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance, and it can also withstand high energy in the avalanche.

This UTC **UTT25P10** is suitable for motor drivers, switching regulators, converters and relay drivers, etc.

■ FEATURES

* $R_{DS(ON)}$=0.150Ω @ V_{GS}=-10V
* High Switching Speed

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT25P10L-TA3-T	UTT25P10G-TA3-T	TO-220	G	D	S	Tube
UTT25P10L-TN3-T	UTT25P10G-TN3-T	TO-252	G	D	S	Tube
UTT25P10L-TN3-R	UTT25P10G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT25P10L-TA3-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TN3: TO-252 (3) G: Halogen Free, L: Lead Free

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (Note 2)		V_{DSS}	-100	V
Drain-Gate Voltage (R_{GS}=20kΩ) (Note 2)		V_{DGR}	-100	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	-25	A
	Pulsed (Note 3)	I_{DM}	-60	A
Linear Derating Factor			1.2	W/°C
Power Dissipation	TO-220	P_D	150	W
	TO-252		50	
Junction Temperature		T_J	-55~+150	°C
Storage 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_J=25°C ~ 150°C
3. Repetitive rating: pulse width limited by maximum junction temperature.

■ THERMAL CHARACTERISTICS

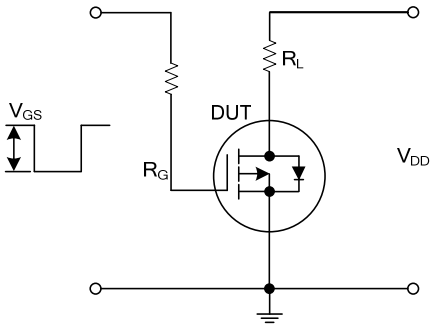
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	TO-220	θ_{JC}	0.83	°C/W
	TO-252		2.5	

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

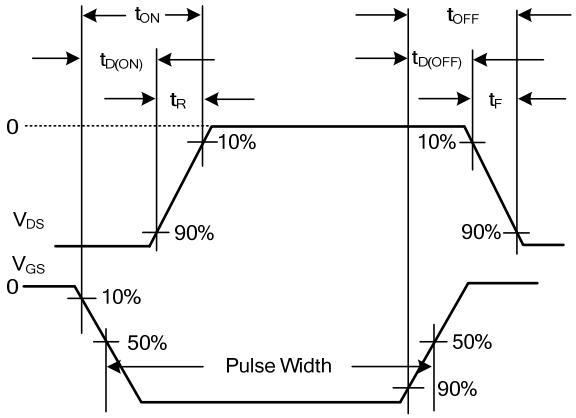
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	-100			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=Rated BV_{DSS}, V_{GS}=0V			-1	μA
			V_{DS}=0.8xRated BV_{DSS}, V_{GS}=0V , T_C=125°C			-25	
Gate- Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	-2		-4	V
Drain to Source On Voltage (Note 1)		$V_{DS(ON)}$	I_D=-25A, V_{GS}=-10V			-3.75	V
Static Drain-Source On-State Resistance (Note 2)		$R_{DS(ON)}$	V_{GS}=-10V, I_D=2.5A			0.150	Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=-25V, f=1MHz			3000	pF
Output Capacitance		C_{OSS}				1500	pF
Reverse Transfer Capacitance		C_{RSS}				600	pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		$t_{D(ON)}$	I_D≈12.5A, V_{DS}=-50V, R_{GS}=50Ω,V_{GS}=-10V, R_L=4.0Ω		35	50	ns
Rise Time		t_R			165	250	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			270	400	ns
Fall-Time		t_F			165	250	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage (Note 1)		V_{SD}	I_{SD}=-12.5A,			-1.4	V

Note: 1. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%.

■ TEST CIRCUITS AND WAVEFORMS



Switching Time Test Circuit



Resistive Switching Waveforms