

UTT25P10

Power MOSFET

-25A, -100V P-CHANNEL POWER MOSFET

DESCRIPTION

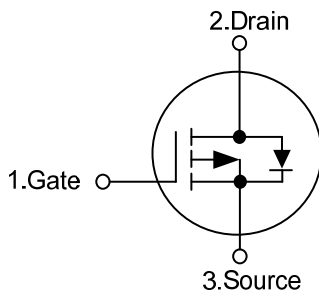
The **UTT25P10** is a P-channel power MOSFET using's advanced technology to provide the customers with high switching speed and a minimum on-state resistance, and it can also withstand high energy in the avalanche.

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

FEATURES

- * $R_{DS(ON)} < 0.15\Omega @ V_{GS} = -10V, I_D = -25A$
- * High Switching Speed

SYMBOL

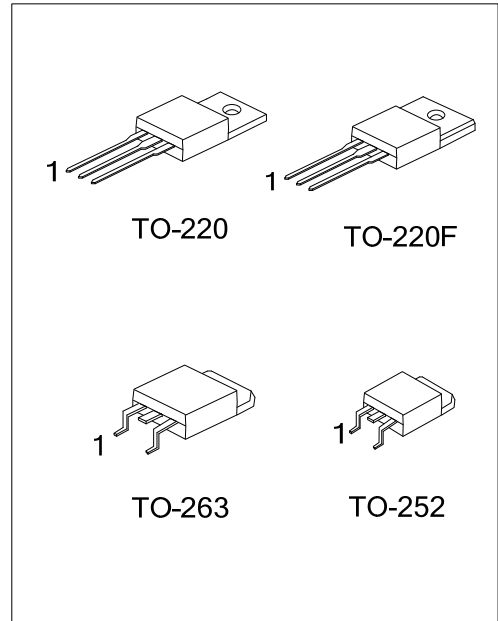


ORDERING INFORMATION

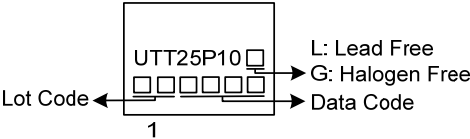
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT25P10L-TA3-T	UTT25P10G-TA3-T	TO-220	G	D	S	Tube
UTT25P10L-TF3-T	UTT25P10G-TF3-T	TO-220F	G	D	S	Tube
UTT25P10L-TN3-R	UTT25P10G-TN3-R	TO-252	G	D	S	Tape Reel
UTT25P10L-TQ2-T	UTT25P10G-TQ2-T	TO-263	G	D	S	Tube
UTT25P10L-TQ2-R	UTT25P10G-TQ2-R	TO-263	G	D	S	Tape Reel

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

<p>UTT25P10G-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA3: TO-220, TF3: TO-220F, TN3: TO-252, TQ2: TO-263</p> <p>(3) G: Halogen Free and Lead Free, Lead Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (Note 2)		V_{DSS}	-100	V
Drain-Gate Voltage ($R_{GS}=20\text{k}\Omega$)		V_{DGR}	-100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	-25	A
	Pulsed (Note 2)	I_{DM}	-60	A
Single Pulsed Avalanche Energy (Note 3)		E_{AS}	70	mJ
Power Dissipation	TO-220/TO-263	P_D	100	W
	TO-220F		2	
	TO-252		50	
Junction Temperature		T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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. Repetitive rating: pulse width limited by maximum junction temperature.

3. $L = 0.35\text{mH}$, $I_{AS} = 20\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^{\circ}\text{C}$

■ THERMAL CHARACTERISTICS

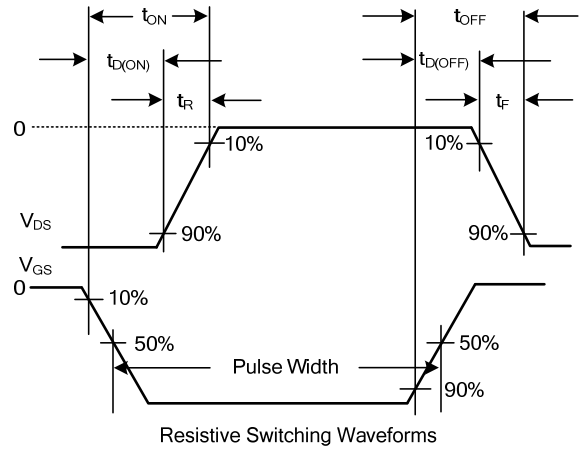
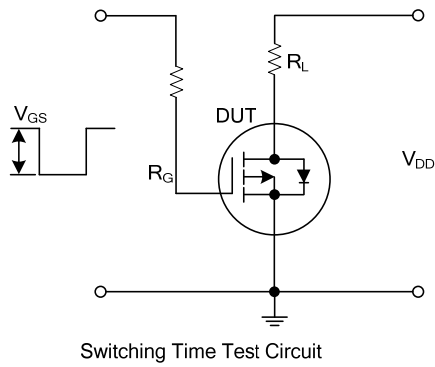
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Case	TO-220/TO-263	θ_{JC}	0.83	$^{\circ}\text{C}/\text{W}$
	TO-220F		4.5	
	TO-252		2.5	

■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

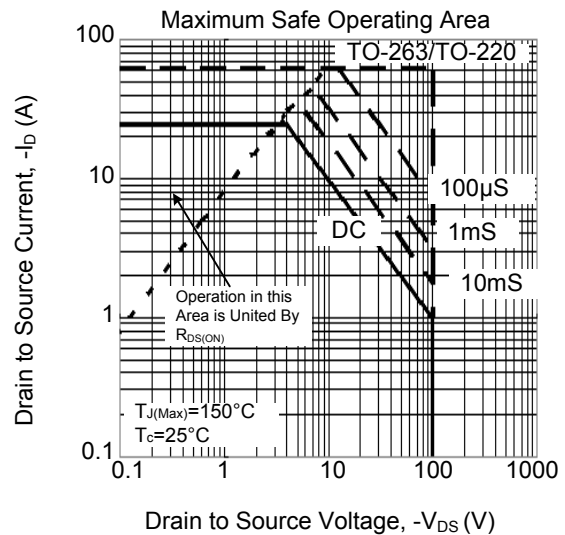
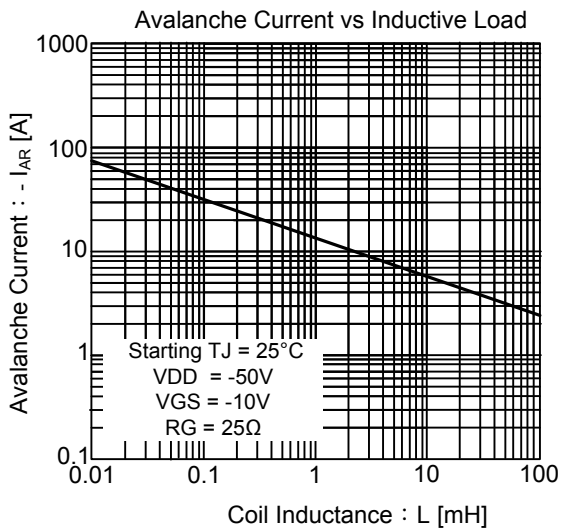
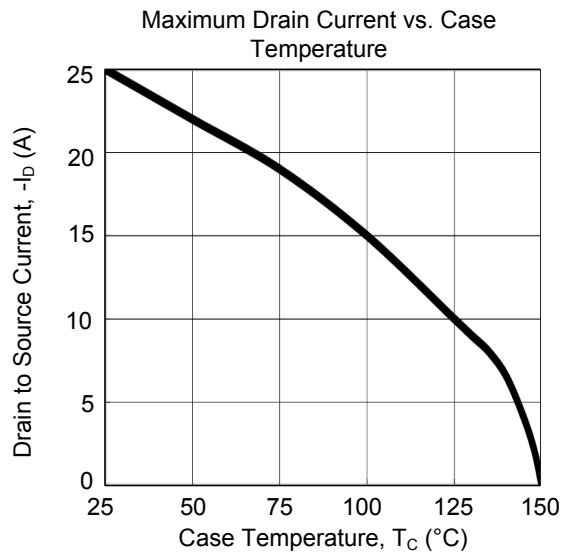
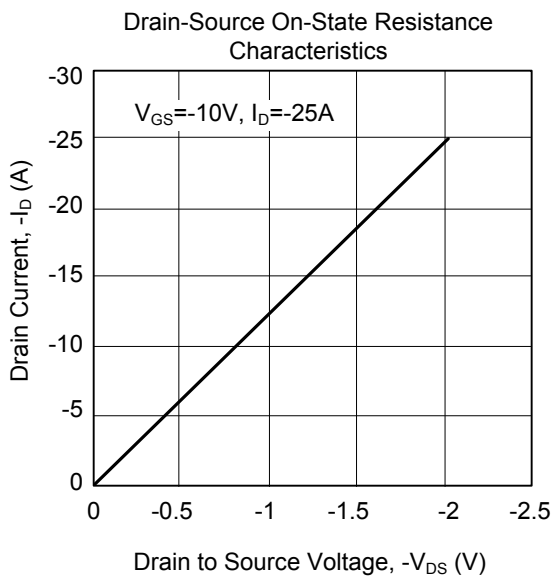
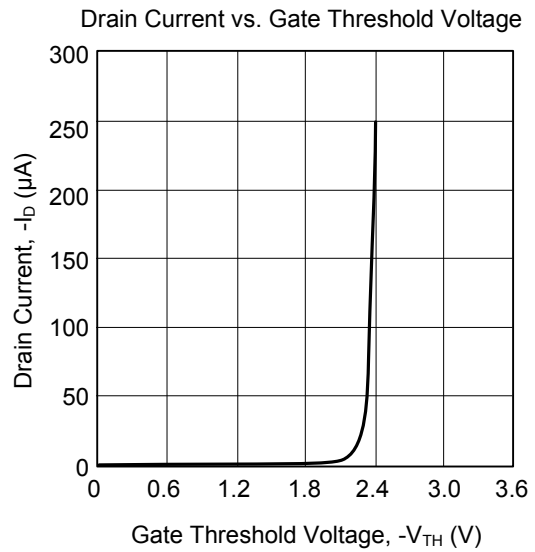
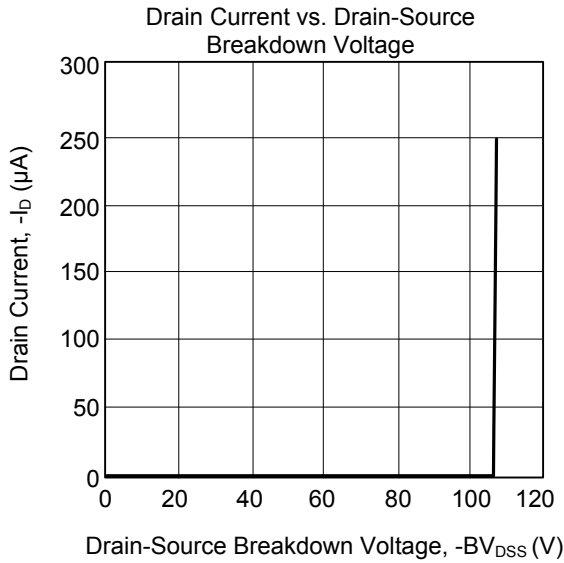
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = -250\mu\text{A}$, $V_{GS} = 0\text{V}$	-100			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = \text{Rated } BV_{DSS}$, $V_{GS} = 0\text{V}$			-1	μA
		$V_{DS} = 0.8 \times \text{Rated } BV_{DSS}$, $V_{GS} = 0\text{V}$, $T_C = 125^{\circ}\text{C}$			-25	
Gate- Source Leakage Current	Forward	I_{GSS}	$V_{GS} = +20\text{V}$, $V_{DS} = 0\text{V}$		+100	nA
	Reverse			$V_{GS} = -20\text{V}$, $V_{DS} = 0\text{V}$		
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}$, $I_D = -250\mu\text{A}$	-1.0		-3.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = -10\text{V}$, $I_D = -25\text{A}$			0.15	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS} = 0\text{V}$, $V_{DS} = -25\text{V}$, $f = 1\text{MHz}$		3700		pF
Output Capacitance	C_{OSS}			302		pF
Reverse Transfer Capacitance	C_{RSS}			126		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS} = -10\text{V}$, $V_{DS} = -80\text{V}$, $I_D = -25\text{A}$		70		nC
Gate to Source Charge	Q_{GS}			16		nC
Gate to Drain Charge	Q_{GD}			16		nC
Turn-ON Delay Time	$t_{D(ON)}$	$I_D = -25\text{A}$, $V_{DS} = -50\text{V}$, $R_G = 5.6\Omega$, $V_{GS} = -10\text{V}$		6.4		ns
Rise Time	t_R			8.3		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			80		ns
Fall-Time	t_F			34.9		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage (Note 1)	V_{SD}	$I_{SD} = -12.5\text{A}$			-1.4	V

Note: Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

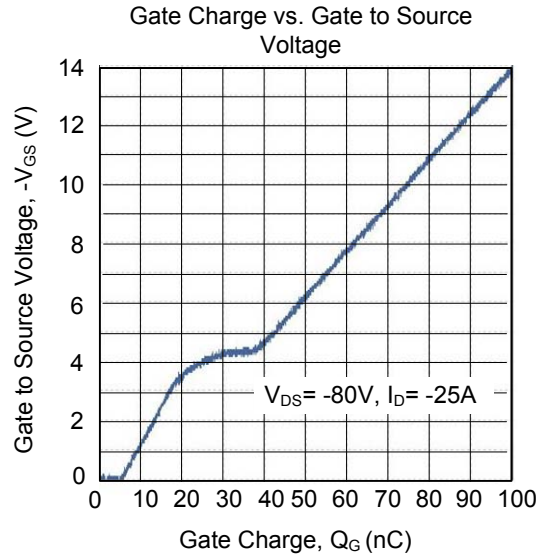
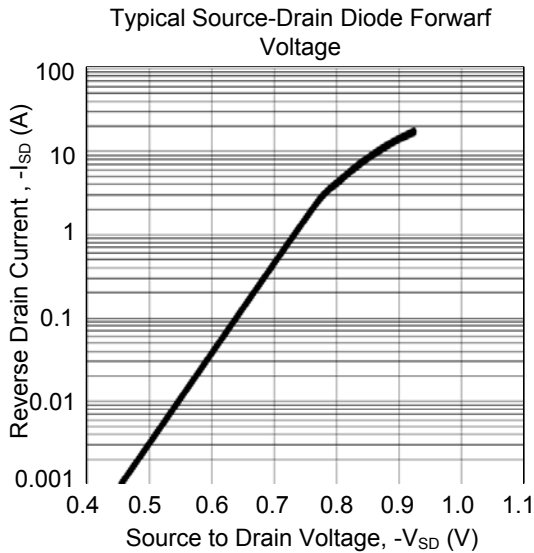
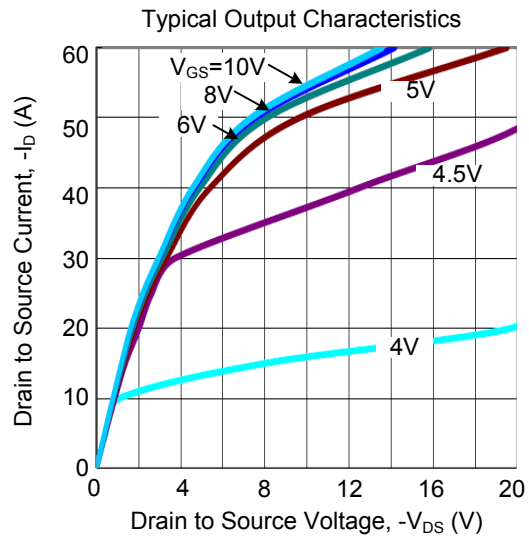
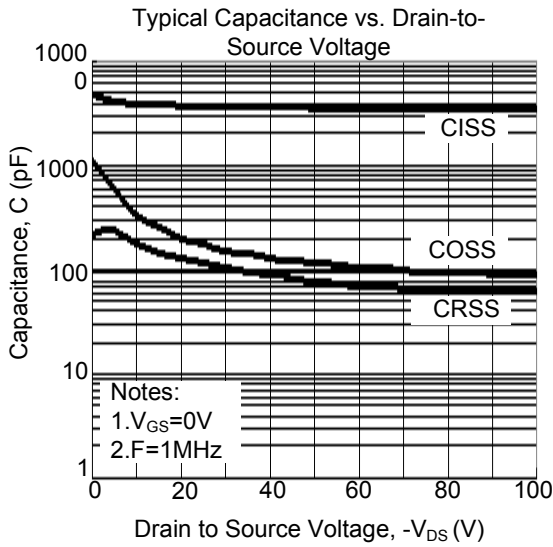
■ TEST CIRCUITS AND WAVEFORMS



TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



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