



UTT3N06

Power MOSFET

3A, 60V N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

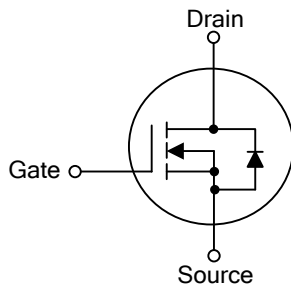
DESCRIPTION

The UTC **UTT3N06** is an N-channel MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance, high switch speed and low gate charge.

FEATURES

- * $R_{DS(ON)} \leq 80m\Omega @ V_{GS}=10V, I_D=3.0A$
- * $R_{DS(ON)} \leq 100m\Omega @ V_{GS}=4.5V, I_D=2.0A$
- * High switch speed
- * Low gate charge

SYMBOL

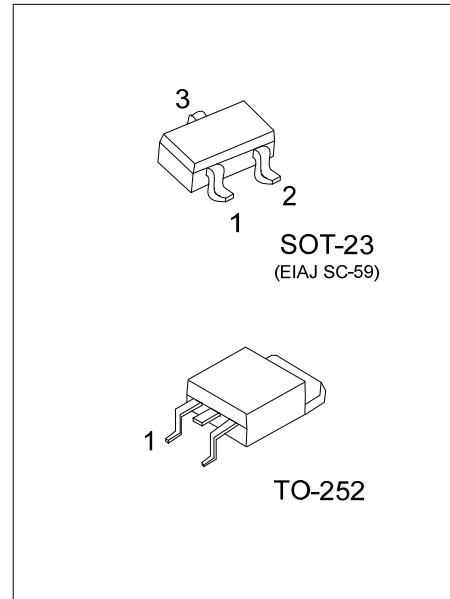


ORDERING INFORMATION

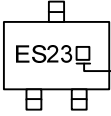
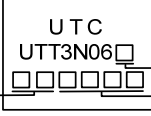
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT3N06L-AE3-R	UTT3N06G-AE3-R	SOT-23	G	S	D	Tape Reel
UTT3N06L-TN3-R	UTT3N06G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UTT3N06G-AE3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AE3: SOT-23, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

SOT-23	TO-252
 <p>ES23</p> <p>L: Lead Free G: Halogen Free</p>	 <p>UTC UTT3N06</p> <p>Lot Code ← [] [] [] [] [] → Date Code</p> <p>1</p> <p>L: Lead Free G: Halogen Free</p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	3	A
	Pulsed (Note 1)	I_{DM}	12	A
Power Dissipation	SOT-23	P_D	1.25	W
	TO-252		3.13	W
Junction Temperature		T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ +150	$^\circ\text{C}$

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 CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23	θ_{JA}	100	$^\circ\text{C/W}$
	TO-252		40	$^\circ\text{C/W}$

Note: Surface Mounted on FR4 Board, $t < 10$ sec.

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

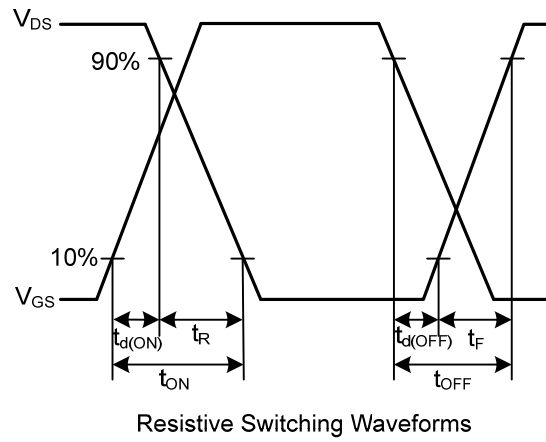
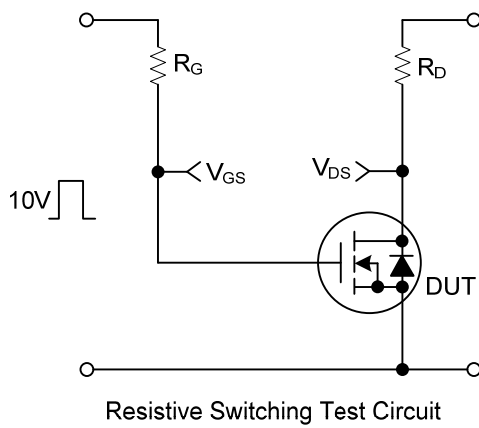
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	60			V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}, V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS (Note 2)							
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		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=3\text{A}$			80	m Ω
			$V_{GS}=4.5\text{V}, I_D=2.4\text{A}$			100	m Ω
DYNAMIC PARAMETERS (Note 3)							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1.0\text{MHz}$		500		pF
Output Capacitance		C_{OSS}			65		pF
Reverse Transfer Capacitance		C_{RSS}			55		pF
SWITCHING PARAMETERS (Note 3)							
Total Gate Charge		Q_G	$V_{GS}=10\text{V}, V_{DS}=30\text{V}, I_D=1\text{A}$ $R_G=100\text{k}\Omega$		62		nC
Gate to Source Charge		Q_{GS}			5		nC
Gate to Drain Charge		Q_{GD}			5		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=1\text{A}, R_{GEN}=25\Omega,$ $V_{GS}=10\text{V}$		35		ns
Rise Time		t_R			65		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			296		ns
Fall-Time		t_F			80		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current (Note 2)		I_S				1	A
Drain-Source Diode Forward Voltage (Note 2)		V_{SD}	$I_S=1\text{A}, V_{GS}=0\text{V}$			1.2	V

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

3. Guaranteed by design, not subject to production testing.

■ TEST CIRCUITS AND WAVEFORMS



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