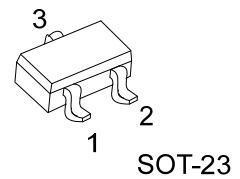
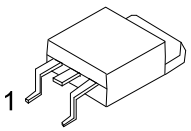
UTT3N06

Power MOSFET

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



SOT-23
(EIAJ SC-59)



TO-252

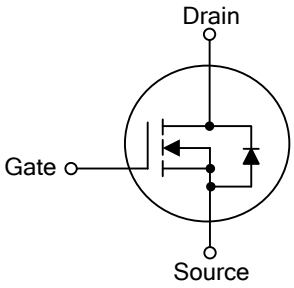
■ DESCRIPTION

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



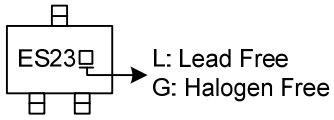
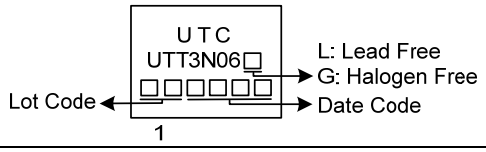
■ ORDERING INFORMATION

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

UTT3N06G-AE3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE3: SOT-23, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-23	TO-252
	

■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°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	°C
Storage Temperature Range		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 CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23	θ_{JA}	100	°C/W
	TO-252		40	°C/W

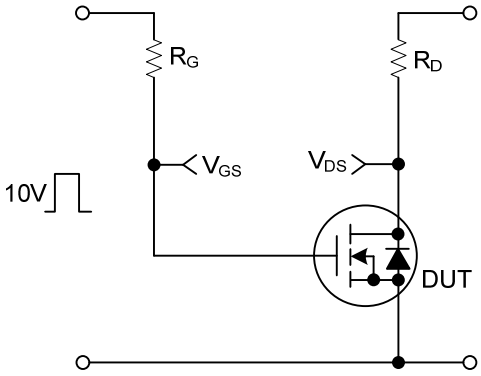
Note: Surface Mounted on FR4 Board, t <10 sec.

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

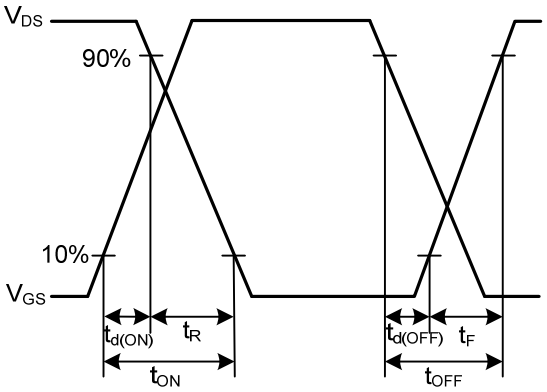
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	60			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS (Note 2)							
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=3A			80	mΩ
			V_{GS}=4.5V, I_D=2.4A			100	mΩ
DYNAMIC PARAMETERS (Note 3)							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		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}=10V, V_{DS}=30V, I_D=1A, R_G=100kΩ		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}=30V, I_D=1A, R_{GEN}=25Ω, V_{GS}=10V		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=1A, V_{GS}=0V			1.2	V

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.
3. Guaranteed by design, not subject to production testing.

■ TEST CIRCUITS AND WAVEFORMS



Resistive Switching Test Circuit



Resistive Switching Waveforms