



UTT36P03

Power MOSFET

**-30V, -36A P-CHANNEL
POWER MOSFET**

■ DESCRIPTION

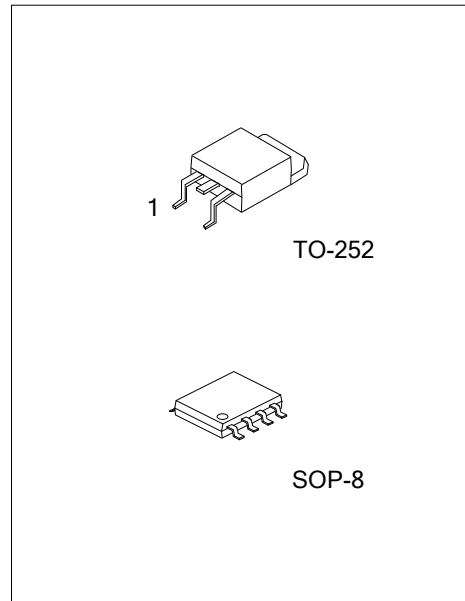
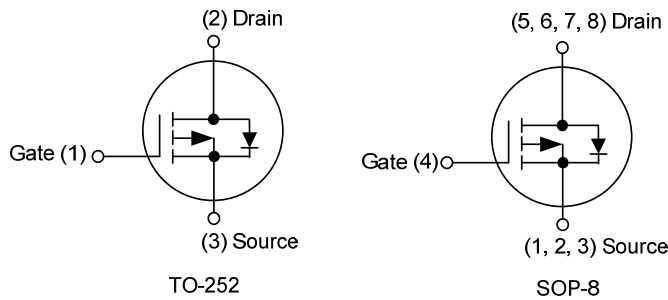
The UTC **UTT36P03** is a P-channel Power MOSFET, using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance, and it can also withstand high energy in the avalanche.

The UTC **UTT36P03** is suitable for low voltage, high speed switching applications.

■ FEATURES

- * $R_{DS(ON)} \leq 38\text{ m}\Omega$ @ $V_{GS}=-10\text{V}$, $I_D=-36\text{A}$
- $R_{DS(ON)} \leq 55\text{ m}\Omega$ @ $V_{GS}=-4.5\text{V}$, $I_D=-10\text{A}$
- * High Switching Speed

■ SYMBOL



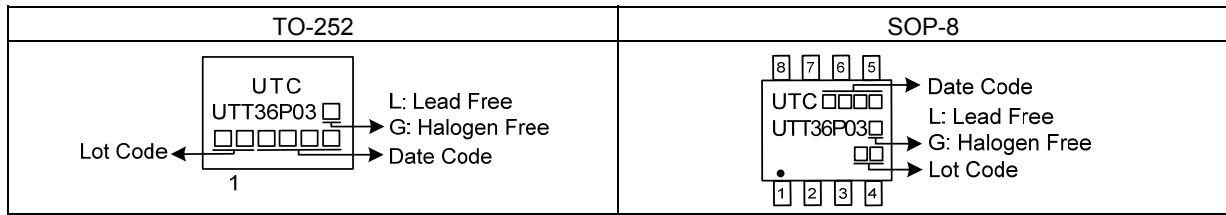
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT36P03L-TN3-R	UTT36P03G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UTT36P03L-S08-R	UTT36P03G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UTT36P03G-TN3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) TN3: TO-252, S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	-36	A
	Pulsed	I_{DM}	-72	A
Avalanche Current		I_{AR}	-36	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	28	mJ
Power Dissipation	TO-252	P_D	48	W
	SOP-8		1.2	W
Junction Temperature		T_J	+150	$^{\circ}C$
Storage Temperature Range		T_{STG}	-55 ~ +150	$^{\circ}C$

- 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. $L = 0.1mH$, $I_{AS} = -23.7A$, $V_{DD} = -25V$, $R_G = 25\Omega$, Starting $T_J = 25^{\circ}C$.

■ THERMAL DATA

PARAMETER		SYMBOL	RATING	UNIT
Junction to Ambient	TO-252	θ_{JA}	50	$^{\circ}C/W$
	SOP-8		90	$^{\circ}C/W$
Junction to Case	TO-252	θ_{JC}	2.6	$^{\circ}C/W$
	SOP-8		104	$^{\circ}C/W$

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A, V_{GS}=0V$	-30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-30V$			-1	μA
Gate-Source Leakage Current	Forward	$V_{GS}=+20V, V_{DS}=0V$			+100	nA
	Reverse	$V_{GS}=-20V, V_{DS}=0V$			-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$I_D=-250\mu A$	-1.0		-3.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-36A$			38	m Ω
		$V_{GS}=-4.5V, I_D=-10A$			55	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=-25V, f=1MHz$		760		pF
Output Capacitance	C_{OSS}			135		pF
Reverse Transfer Capacitance	C_{RSS}			115		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DS}=-24V, V_{GS}=-10V, I_D=-36A$ $I_G=-1mA$ (Note 1, 2)		22		nC
Gate to Source Charge	Q_{GS}			3.5		nC
Gate to Drain Charge	Q_{GD}			5		nC
Turn-ON Delay Tim	$t_{D(ON)}$	$V_{DS}=-15V, V_{GS}=-10V, I_D=-36A,$ $R_G=3.3\Omega$ (Note 1, 2)		6		ns
Rise Time	t_R			16		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			29		ns
Fall-Time	t_F			21		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				-36	A
Maximum Body-Diode Pulsed Current	I_{SM}				-72	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=-36A$			-1.6	V

Notes: 1. Pulse Test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature.

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