



UTT50N05

Preliminary

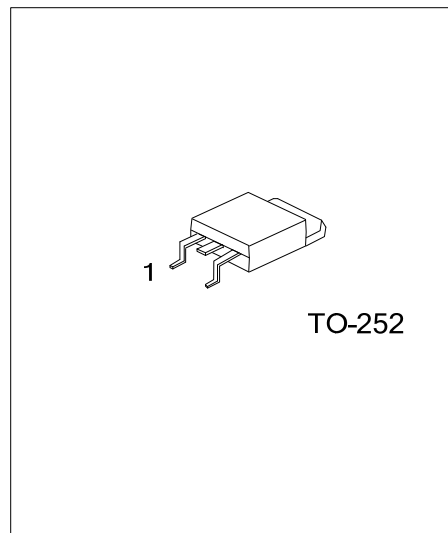
Power MOSFET

50A, 50V N-CHANNEL ENHANCEMENT MODE POWER MOSFET TRANSISTOR

DESCRIPTION

The UTC **UTT50N05** is an N-channel enhancement power MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

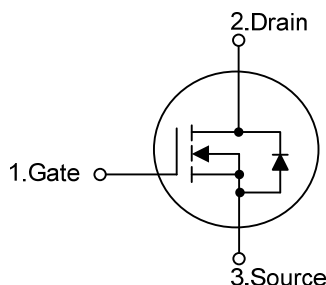
The UTC **UTT50N05** is suitable for motor control, AC-DC or DC-DC converters and audio amplifiers, etc.



FEATURES

- * $R_{DS(ON)}=18m\Omega @ V_{GS}=10V, I_D=20A$
- * High Switching Speed
- * High Current Capacity
- * Low Gate Charge(typical 30nC)

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT50N05L-TN3-R	UTT50N05G-TN3-R	TO-252	G	D	S	Tape Reel

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

UTT50N05L-TN3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) TN3: TO-252
	(3)Lead Free	(3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	50	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current	Continuous	I_D	50	A
	Pulsed	I_{DM}	200	A
Avalanche Energy	Single Pulsed	E_{AS}	400	mJ
	Repetitive	E_{AR}	100	mJ
Power Dissipation		P_D	113	W
Junction Temperature		T_J	+150	$^{\circ}C$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}C$

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 DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	100	$^{\circ}C/W$
Junction to Case	θ_{JC}	1.1	$^{\circ}C/W$

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	50			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			10	μA
Gate- Source Leakage Current		I_{GSS}			+100	nA
					-100	nA
		$V_{GS}=-20V, V_{DS}=0V$				
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$		18	23	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=25V, f=1.0MHz$		900	1220	pF
Output Capacitance	C_{OSS}			430	550	pF
Reverse Transfer Capacitance	C_{RSS}			80	100	pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{GS}=10V, V_{DS}=30V, I_D=50A, I_G=3.33mA$		30	40	nC
Gate to Source Charge	Q_{GS}			9.6		nC
Gate to Drain Charge	Q_{GD}			10		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=30V, I_D=15A, R_G=2.5\Omega, V_{GS}=10V$		40	60	ns
Rise Time	t_R			100	200	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			90	180	ns
Fall-Time	t_F			80	160	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S		50			A
Maximum Body-Diode Pulsed Current	I_{SM}		200			A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=50A, V_{GS}=0V$			1.5	V

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