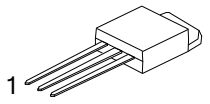
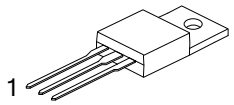
75A, 25V N-CHANNEL POWER MOSFET



TO-251



TO-220

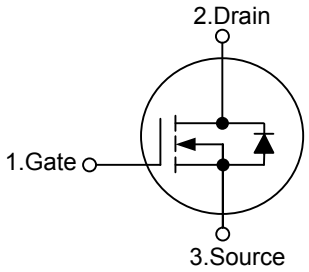
■ DESCRIPTION

The UTC **UT75N02** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

■ FEATURES

* $R_{DS(ON)}$< 7mΩ @ V_{GS}=10V
* $R_{DS(ON)}$< 8mΩ @ V_{GS}=7V

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT75N02L-TA3-T	UT75N02G-TA3-T	TO-220	G	D	S	Tube
UT75N02L-TM3-T	UT75N02G-TM3-T	TO-251	G	D	S	Tube

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

UT75N02L-TA3-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube (2) TA3: TO-220, TM3: TO-251 (3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

PARAMETER SYMBOL			RATINGS	UNIT
Drain Source Voltage		V_{DSS} 25		V
Gate-Source Voltage		V_{GSS} ±20		V
Continuous Drain Current		I_D 75		A
Pulsed Drain Current (Note 2)		I_{DM} 170		A
Avalanche Current		I_{AR} 60		A
Avalanche Energy	L=0.1mH	E_{AS} 140		mJ
Repetitive Avalanche Energy (Note 3)	L=0.05mH	E_{AR} 5.6		mJ
Power Dissipation	TO-220	P_D	40	W
	TO-251		28	
Junction Temperature		T_J +	150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note: 1.Absolute ma ximum ratings a re those v alues be yond which the d evice could be permanently dam aged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Pulse width limited by maximum junction temperature.
3. Duty cycle≤1%.

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	°C/W
	TO-251		110	
Junction to Case	TO-220	θ_{JC}	3.13	°C/W
	TO-251		4.53	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA 25				V
Drain-Source Leakage Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			25	μA
		V_{DS} =20V, V_{GS} = 0V, T_J = 125°C			250	μA
Gate-Source Leakage Current	I_{GSS} V	$_{DS}$=0V, V_{GS}=±20V			±250	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}= V_{GS}, I_D=250μA	1 1.5 3			V
On-State Drain Current (Note 1)	$I_{D(ON)}$ V	$_{DS}$ = 10V, V_{GS} = 10V	70			A
Static Drain-Source On-Resistance (Note 1)	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 30A		5	7	mΩ
		V_{GS} = 7V, I_D = 24A		6	8	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=15V, V_{GS}=0 V, f=1MHz	500 0			pF
Output Capacitance	C_{OSS}			1800		pF
Reverse Transfer Capacitance	C_{RSS}		800			pF
SWITCHING PARAMETERS (Note 2)						
Turn-ON Delay Time	$t_{D(ON)}$	V_{DS} = 15V, V_{GS} = 10V, I_D≈30A R_{GS} = 2.5Ω, R_L = 1Ω,	7			ns
Turn-ON Rise Time	t_R		7			ns
Turn-OFF Delay Time	$t_{D(OFF)}$		24			ns
Turn-OFF Fall-Time	t_F		6			ns
Total Gate Charge	Q_G V	$_{DS}$=0.5$V_{(BR)DSS}$, V_{GS}=10V, I_D=35A	140			nC
Gate Source Charge	Q_{GS}		40			nC
Gate Drain Charge	Q_{GD}		75			nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Forward Voltage (Note 1)	V_{SD}	I_F = I_S, V_{GS} = 0V			1.3	V
Continuous Current	I_S				75	A

Notes: 1. Pulse test : Pulse Width≤300μsec, Duty Cycle≤2%
2. Independent of operating temperature