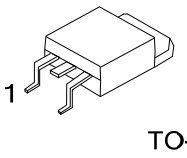
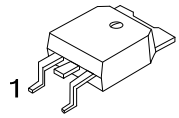
UTT75N03

POWER MOSFET

75A, 30V, N-CHANNEL ENHANCEMENT MODE POWER MOSFET



TO-252



TO-252D

■ DESCRIPTION

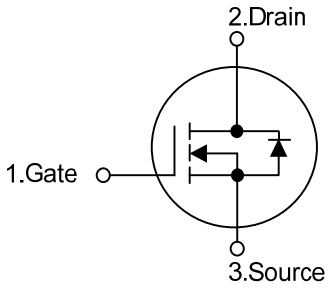
The UTC **UTT75N03** is an N-channel enhancement mode Power MOSFET, it uses UTC's advanced technology to provide the customers with high switching and a minimum on-state resistance.

The UTC **UTT75N03** is suitable for low voltage applications such as DC/DC converters.

■ FEATURES

* $R_{DS(ON)}$<4mΩ @ V_{GS}=10V, I_D=40A
  $R_{DS(ON)}$<7mΩ @ V_{GS}=4.5V, I_D=30A
* Low on-resistance

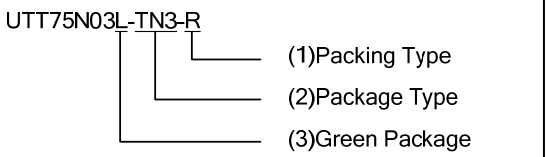
■ SYMBOL



■ ORDERING INFORMATION

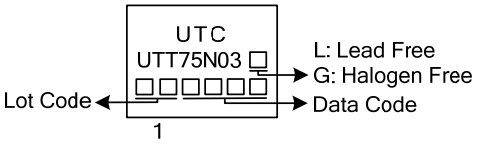
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT75N03L-TN3-R	UTT75N03G-TN3-R	TO-252	G	D	S	Tape Reel
UTT75N03L-TND-R	UTT75N03G-TND-R	TO-252D	G	D	S	Tape Reel

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



(1) R: Tape Reel
(2) TN3: TO-252, TND: TO-252D
(3) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V_{DSS}	30	V
Gate-Source Voltage			V_{GSS}	±20	V
Drain Current	Continuous	V_{GS}=10V, T_C=25°C (Note 4)	I_D	75	A
		V_{GS}=10V, T_C=100°C		56	A
	Pulsed (Note 1)		I_{DM}	300	A
Total Power Dissipation		T_C=25°C	P_D	50	W
		T_A=25°C		2	W
Operating Junction Temperature Range			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 RESISTANCE

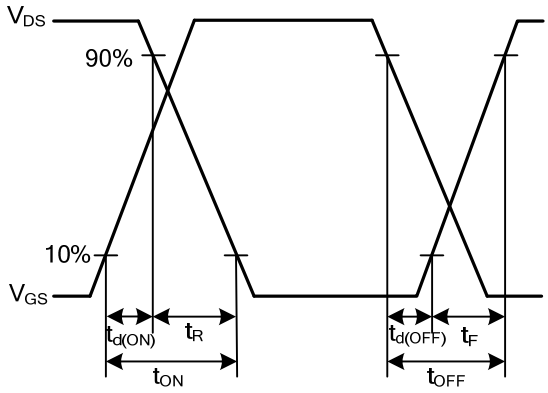
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (PCB Mount) (Note 3)	θ_{JA}	62.5	°C/W
Junction to Case	θ_{JC}	2.5	°C/W

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

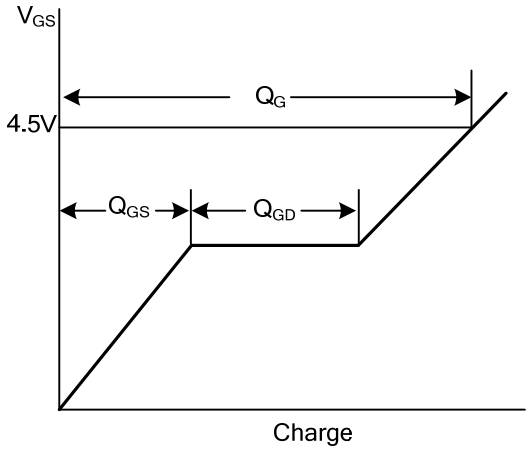
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V	30			V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=30V, V_{GS}=0V			10	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Static Drain-Source On-State Resistance (Note 2)		$R_{DS(ON)}$	V_{GS}=10V, I_D=40A			4	mΩ
			V_{GS}=4.5V, I_D=30A			7	mΩ
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1		3	V
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		3900		pF
Output Capacitance		C_{OSS}			640		pF
Reverse Transfer Capacitance		C_{RSS}			510		pF
Gate Resistance		R_G	f=1.0MHz		1.5		Ω
SWITCHING PARAMETERS							
Turn-ON Delay Time (Note 2)		$t_{D(ON)}$	V_{DS}=15V, I_D=0.25A, R_G=25Ω V_{GS}=10V		78		ns
Rise Time		t_R			140		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			1100		ns
Fall Time		t_F			530		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Forward On Voltage (Note 2)		V_{SD}	I_S=40A, V_{GS}=0V			1.2	V

Notes: 1. Pulse width limited by max. junction temperature
2. Pulse test
3. Surface mounted on 1 in^2 copper pad of FR4 board
4. Package limitation current is 75A

■ TEST CIRCUITS AND WAVEFORMS



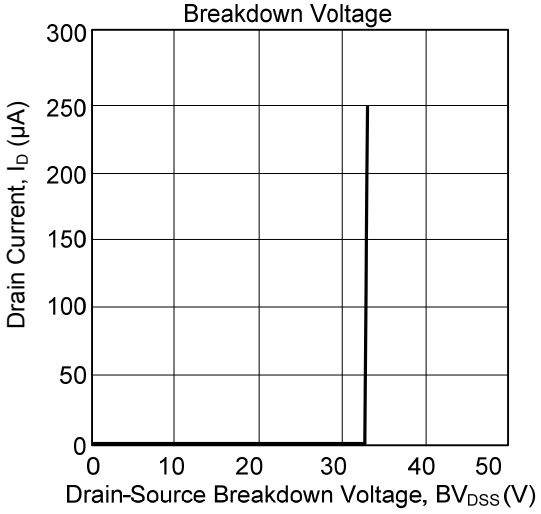
Resistive Switching Waveforms



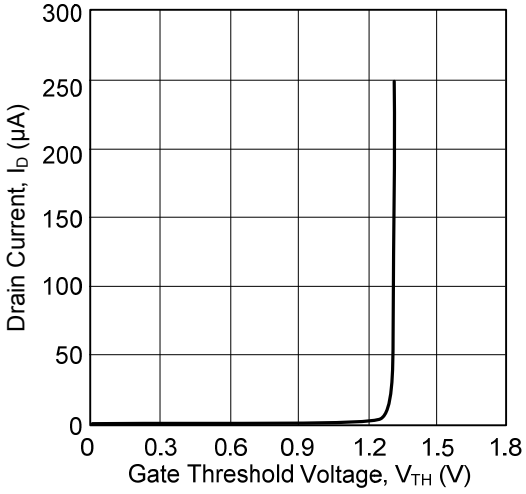
Gate Charge Waveforms

■ TYPICAL CHARACTERISTICS

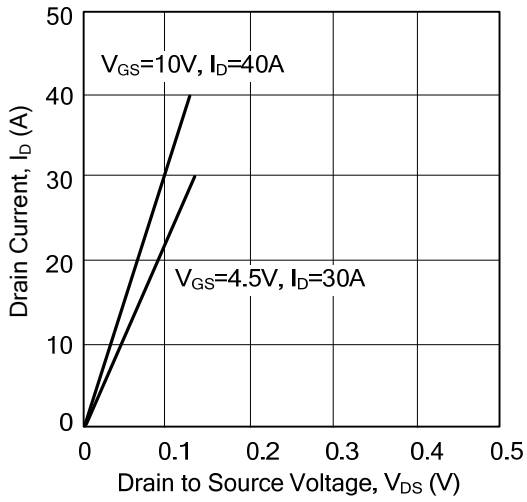
Drain Current vs. Drain-Source Breakdown Voltage



Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Continuous Drain-Source Current vs. Source to Drain Voltage