

**UTT75N03****POWER MOSFET****75A, 30V, N-CHANNEL
ENHANCEMENT MODE
POWER MOSFET****DESCRIPTION**

The UTC **UTT75N03** is a 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.

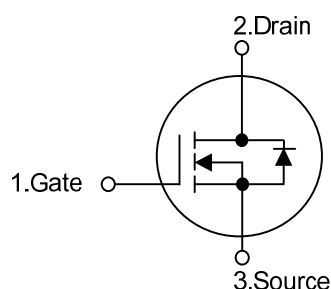
The UTC **UTT75N03** is suitable for low voltage applications such as DC/DC converters.

FEATURES

* $R_{DS(ON)} < 4.0\text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=40\text{A}$

$R_{DS(ON)} < 7.0\text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=30\text{A}$

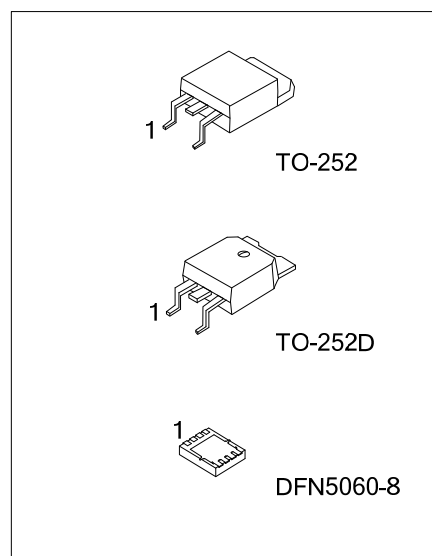
* Low on-resistance

SYMBOL**ORDERING INFORMATION**

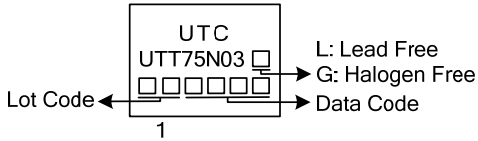
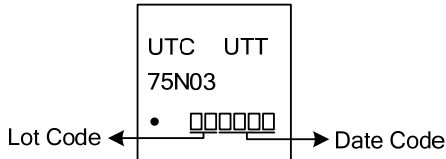
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT75N03L-TN3-R	UTT75N03G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UTT75N03L-TND-R	UTT75N03G-TND-R	TO-252D	G	D	S	-	-	-	-	-	Tape Reel
UTT75N03L-K08-5060-R	UTT75N03G-K08-5060-R	DFN5060-8	S	S	S	G	D	D	D	D	Tape Reel

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

UTT75N03G-TN3-R		(1) Packing Type	(1) R: Tape Reel
		(2) Package Type	(2) TN3: TO-252, TND: TO-252D,
		(3) Green Package	K08-5060: DFN5060-8
			(3) G: Halogen Free and Lead Free, L: Lead Free



MARKING

TO-252 / TO-252D	DFN5060-8
 UTC UTT75N03 Lot Code ← [] [] [] [] [] → Data Code 1 L: Lead Free G: Halogen Free	 UTC UTT 75N03 Lot Code ← [] [] [] [] [] → Date Code

■ ABSOLUTE MAXIMUM RATING $T_C=25^{\circ}\text{C}$, unless otherwise specified

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	30	V
Gate-Source Voltage			V _{GSS}	±20	V
Drain Current	Continuous	TO-252	I _D	75	A
		TO-252D			
		DFN5060-8		40	A
	Pulsed (Note 2)	TO-252	I _{DM}	300	A
		TO-252D			
	DFN5060-8		160	A	
Avalanche Energy		Single Pulsed (Note 3)	E _{AS}	125	mJ
Peak Diode Recovery dv/dt (Note 4)			dv/dt	12	V/ns
Total Power Dissipation		TO-252	P _D	50	W
		TO-252D			
		DFN5060-8		35	W
Operating Junction Temperature Range			T _J	-55 ~ +150	°C
Storage Temperature Range			T _{STG}	-55 ~ +150	°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. Pulse width limited by max. junction temperature.

3. $L=0.1\text{mH}$, $I_{AS}=50\text{A}$, $V_{DD}=25\text{V}$, $R_G=25\Omega$, Starting $T_J = 25^{\circ}\text{C}$.

4. $I_{SD} \leq 30\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J = 25^{\circ}\text{C}$.

■ THERMAL RESISTANCE

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (PCB Mount) (Note)	TO-252	θ_{JA}	62.5	$^{\circ}\text{C}/\text{W}$
	TO-252D			
	DFN5060-8		70	$^{\circ}\text{C}/\text{W}$
Junction to Case	TO-252	θ_{JC}	2.5	$^{\circ}\text{C}/\text{W}$
	TO-252D			
	DFN5060-8		3.6	$^{\circ}\text{C}/\text{W}$

Note: Surface mounted on 1 in² copper pad of FR4 board.

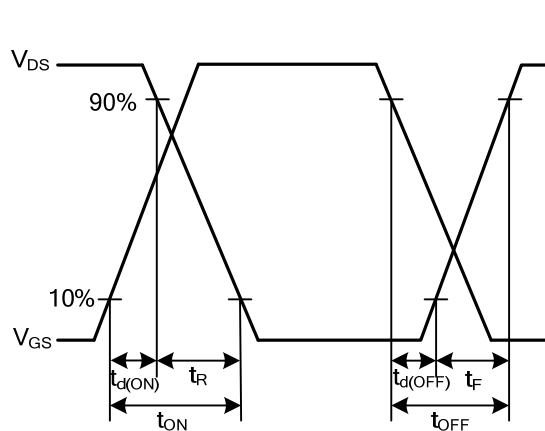
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

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							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	V
Static Drain-Source On-State Resistance (Note)		R _{DS(ON)}	V _{GS} =10V, I _D =40A			4.0	mΩ
			V _{GS} =4.5V, I _D =30A			7.0	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1.0MHz		4350		pF
Output Capacitance		C _{OSS}			850		pF
Reverse Transfer Capacitance		C _{RSS}			630		pF
SWITCHING PARAMETERS							
Total Gate Charge (Note 1)		Q _G	V _{DS} =24V, V _{GS} =10V, I _D =60A I _G =1mA (Note 1, 2)		102		nC
Gate to Source Charge		Q _{GS}			22		nC
Gate to Drain Charge		Q _{GD}			24		nC
Turn-ON Delay Time (Note 1)		t _{D(ON)}	V _{DS} =15V, V _{GS} =10V, I _D =60A R _G =25Ω		26		ns
Rise Time		t _R			88		ns
Turn-OFF Delay Time		t _{D(OFF)}			250		ns
Fall Time		t _F			190		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Pulsed Current		I _S				75	A
Drain-Source Diode Forward Voltage (Note 1)		I _{SM}				300	A
Forward On Voltage (Note 1)		V _{SD}	I _S =75A, V _{GS} =0V			1.2	V
Reverse Recovery Time (Note 1)		t _{rr}	I _S =30A, V _{GS} =0V,		240		ns
Reverse Recovery Charge		Q _{rr}	dI _F /dt=100A/μs		0.68		μC

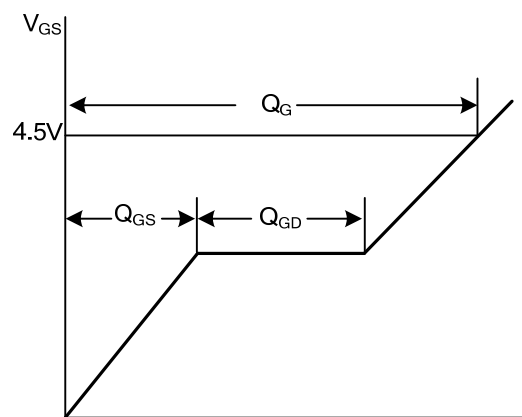
Note: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

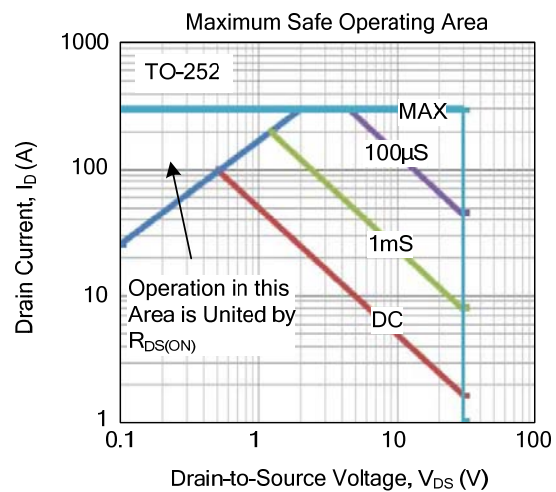
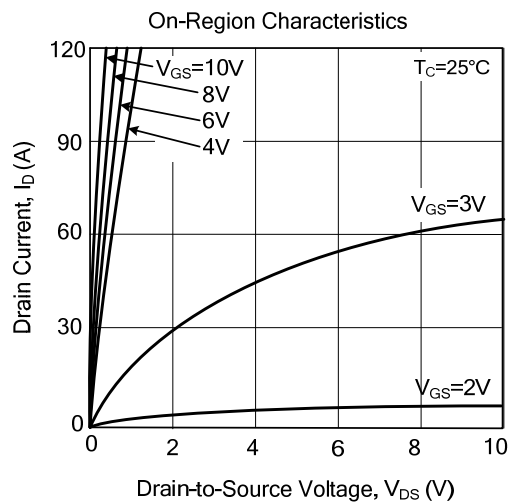
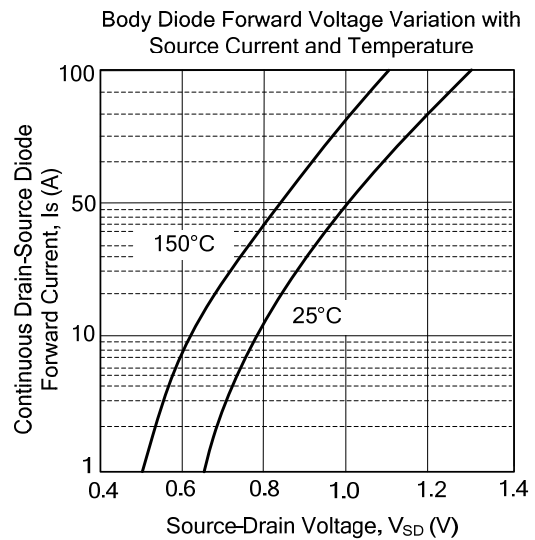
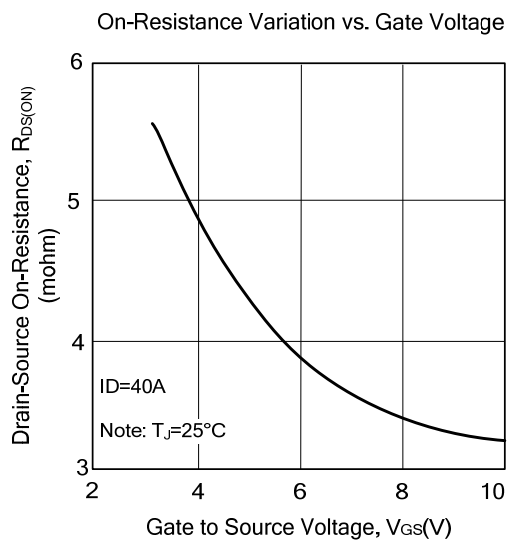
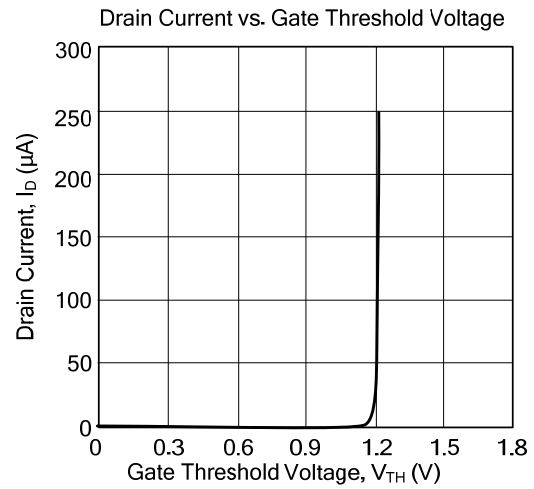
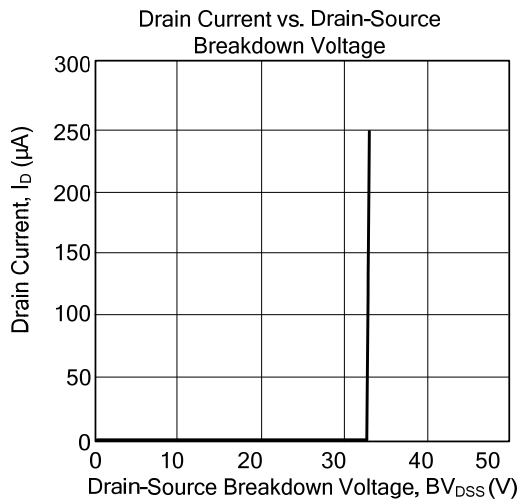


Resistive Switching Waveforms

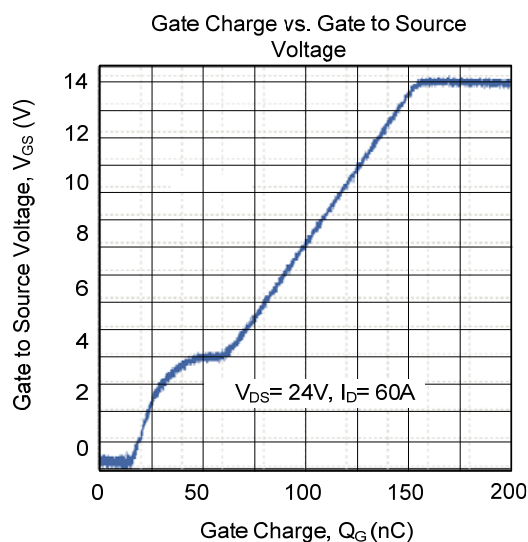
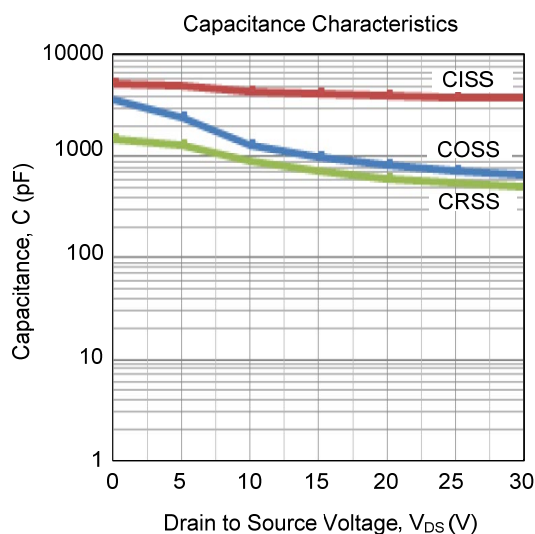
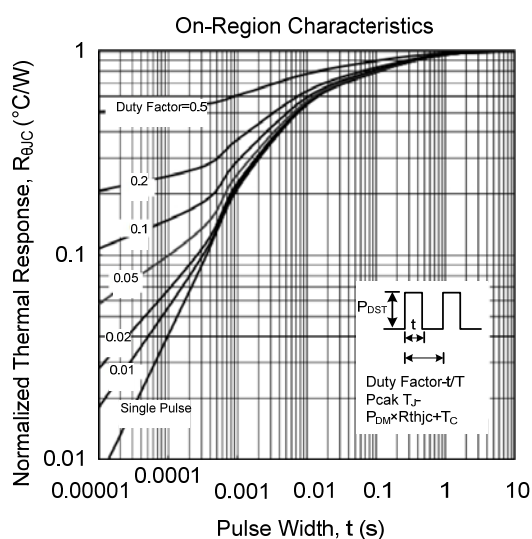


Gate Charge Waveforms

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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