



UT60T03

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

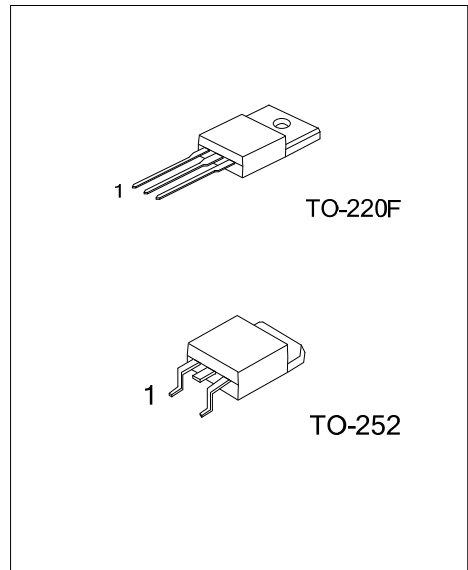
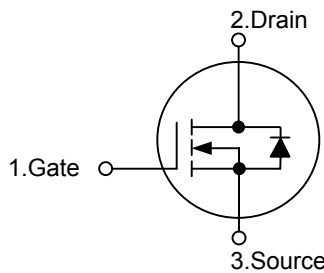
DESCRIPTION

The **UT60T03** can provide excellent $R_{DS(ON)}$ and low gate charge by using UTC's advanced trench technology.

FEATURES

- * Very simple drive requirement
- * Very low gate charge
- * Fast switching

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT60T03-TF3-R	UT60T03L-TF3-R	TO-220F	G	D	S	Tube
UT60T03-TN3-R	UT60T03L-TN3-R	TO-252	G	D	S	Tape Reel
UT60T03-TN3-T	UT60T03L-TN3-T	TO-252	G	D	S	Tube

<p>UT60T03L-TN3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TF3: TO-220F, TN3: TO-252</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	45	A
Pulsed Drain Current (Note 2)	I_{DM}	120	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	TO-220F	56	W
	TO-252	44	
Junction Temperature	T_J	+150	$^{\circ}\text{C}$
Strong Temperature	T_{STG}	-55 ~ +175	$^{\circ}\text{C}$

Note: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 safe operating area.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220F	62.5	$^{\circ}\text{C}/\text{W}$
	TO-252	110	
Junction to Case	TO-220F	2.66	$^{\circ}\text{C}/\text{W}$
	TO-252	3.4	

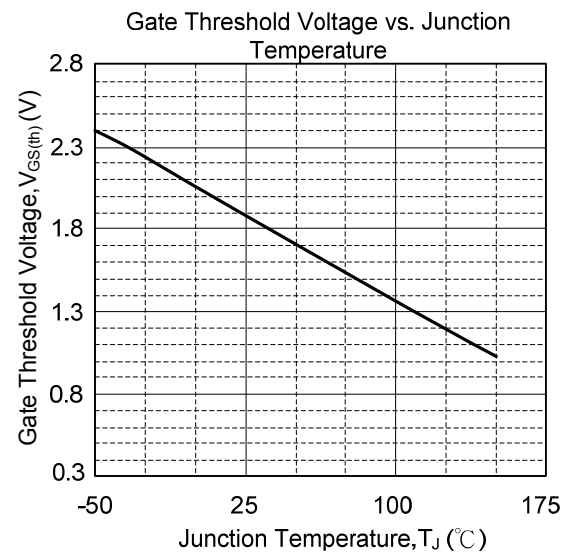
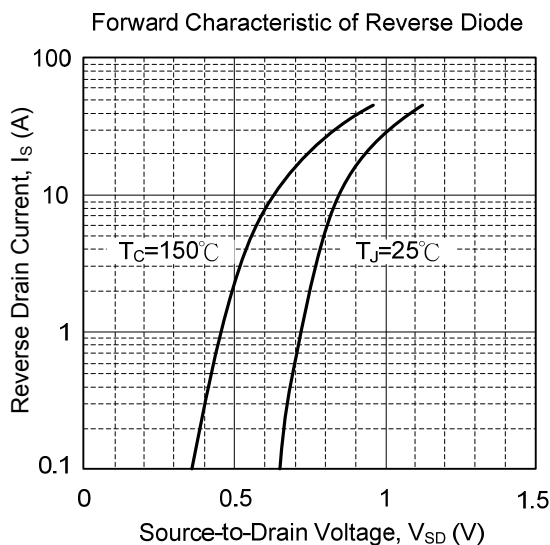
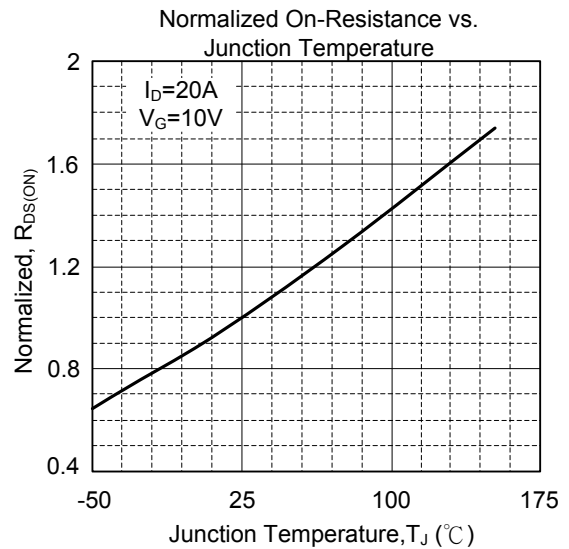
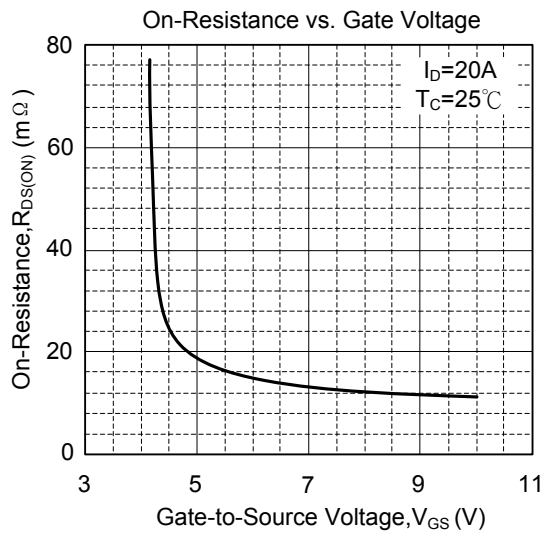
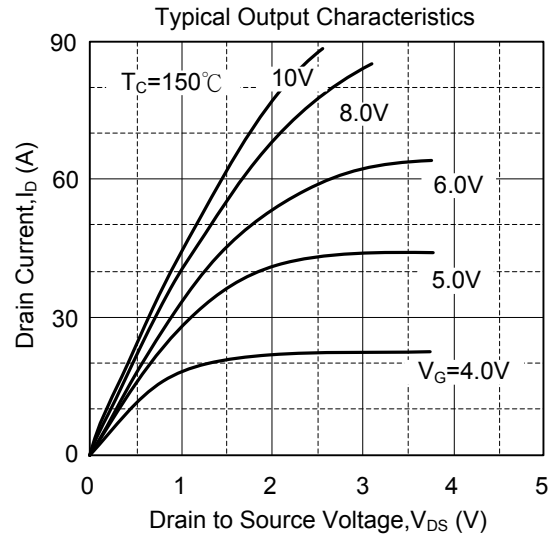
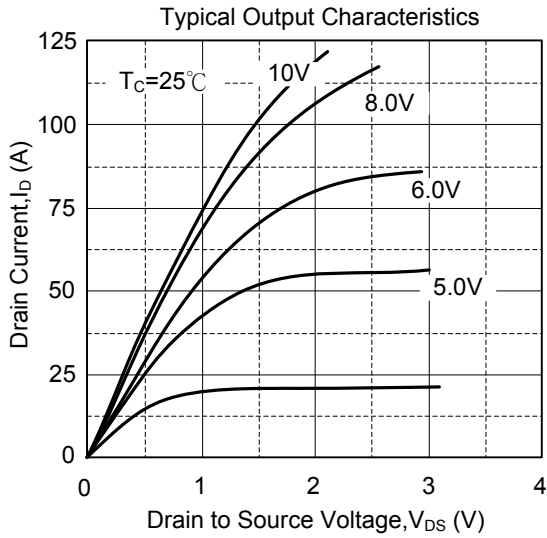
■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$			± 100	nA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to $25^{\circ}\text{C}, I_D=1\text{mA}$		0.026		$\text{V}/^{\circ}\text{C}$
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1		3	V
Static Drain-Source On-Resistance(Note 1)	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=20\text{A}$			12	m Ω
		$V_{GS}=4.5\text{V}, I_D=15\text{A}$			25	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$		1135		pF
Output Capacitance	C_{OSS}			200		
Reverse Transfer Capacitance	C_{RSS}			135		
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DS}=20\text{V}, V_{GS}=4.5\text{V}, I_D=20\text{A}$ (Note 1)		11.6		nC
Gate Source Charge	Q_{GS}			3.9		
Gate Drain Charge	Q_{GD}			7		
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=10\text{V}, V_{DS}=15\text{V}, R_D=0.75\Omega, I_D=20\text{A}, R_G=3.3\Omega$ (Note 1)		8.8		ns
Turn-ON Rise Time	t_R			57.5		
Turn-OFF Delay Time	$t_{D(OFF)}$			18.5		
Turn-OFF Fall-Time	t_F			6.4		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Forward On Voltage (Note 1)	V_{SD}	$I_S=45\text{A}, V_{GS}=0\text{V}$			1.3	V
Reverse Recovery Time	t_{RR}	$I_S=20\text{A}, V_{GS}=0\text{V}, di/dt=100$		23.3		ns
Reverse Recovery Charge	Q_{RR}	A/ μs		16		nC

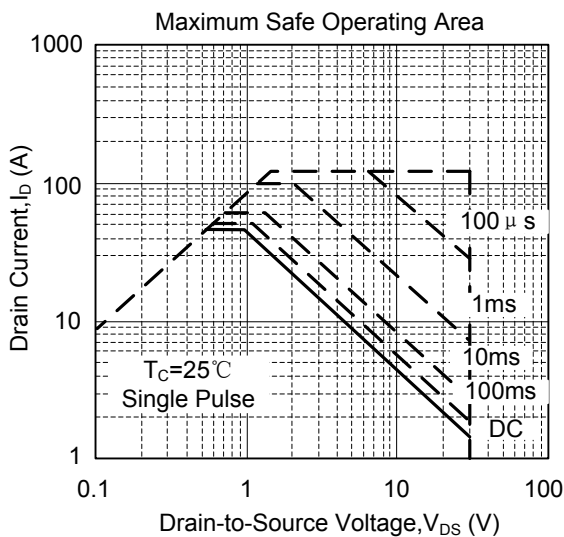
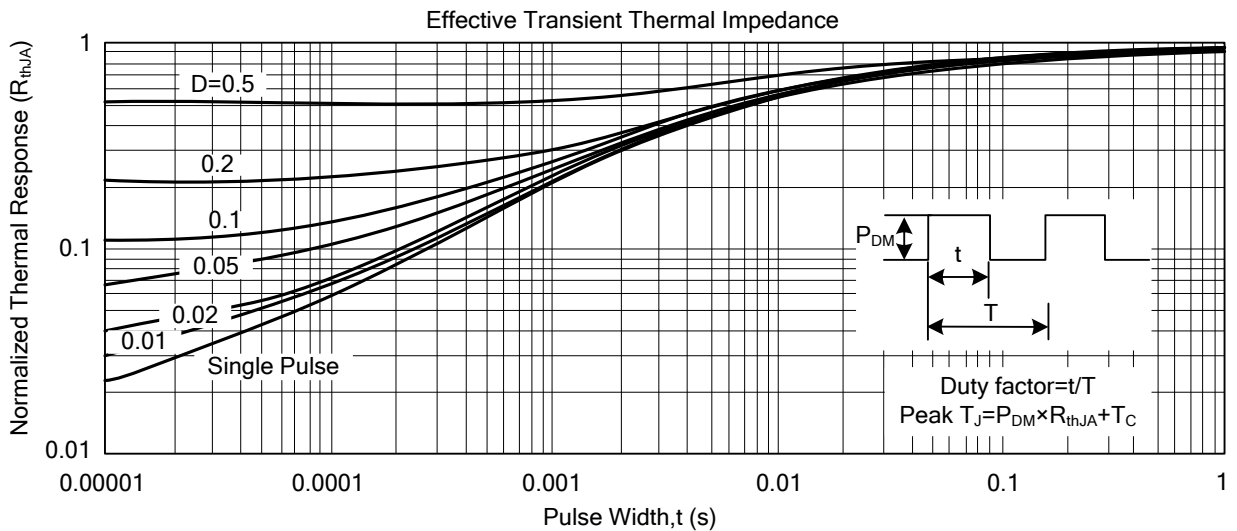
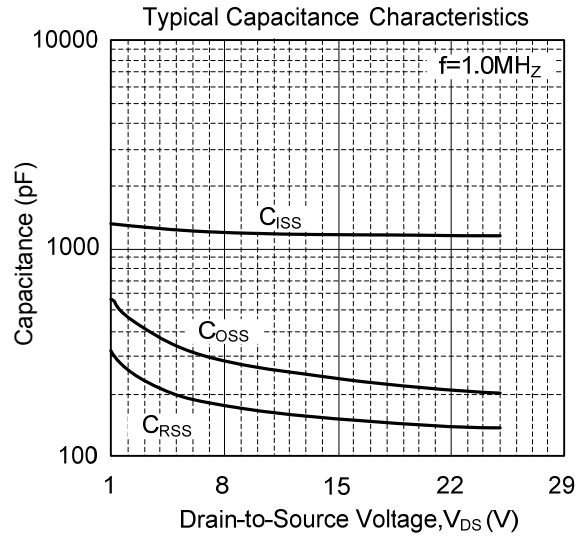
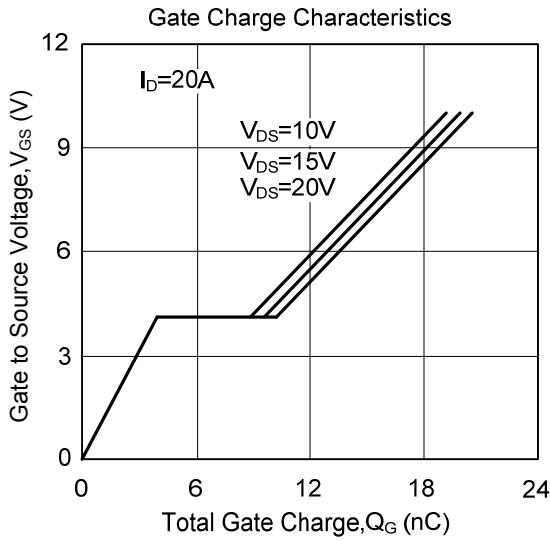
Note: 1. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature

■ TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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