



UT60T03

Power MOSFET

30V, 45A N-CHANNEL ENHANCEMENT MODE

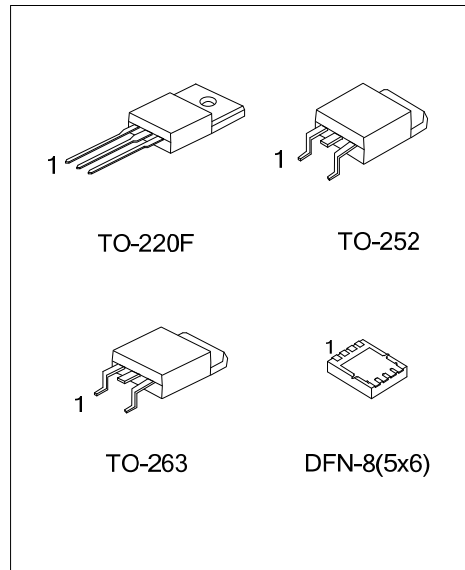
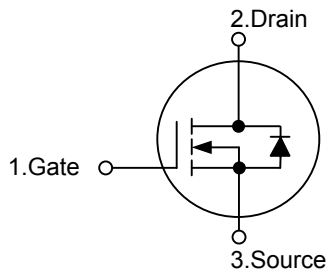
■ DESCRIPTION

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	4	5	6	7	8	
UT60T03L-TF3-T	UT60T03G-TF3-T	TO-220F	G	D	S	-	-	-	-	-	Tube
UT60T03L-TF3-R	UT60T03G-TF3-R	TO-220F	G	D	S	-	-	-	-	-	Tape Reel
UT60T03L-TN3-R	UT60T03G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UT60T03L-TQ2-R	UT60T03G-TQ2-R	TO-263	G	D	S	-	-	-	-	-	Tape Reel
UT60T03L-TQ2-T	UT60T03G-TQ2-T	TO-263	G	D	S	-	-	-	-	-	Tube
-	UT60T03G-K08-5060-R	DFN-8(5x6)	S	S	S	G	D	D	D	D	Tape Reel

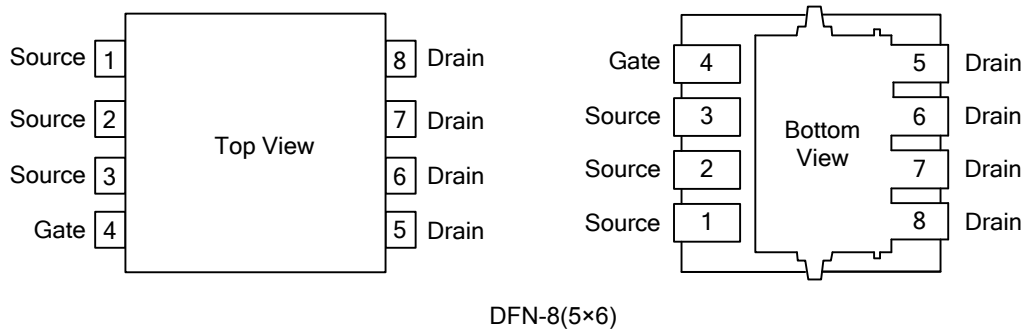
Note: Pin Assignment: G: Gate D: Drain S: Source

<p>UT60T03L-TF3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) TF3: TO-220F, TN3: TO-252, TQ2: TO-263</p> <p>K08-5060: DFN-8(5x6)</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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MARKING

TO-220F / TO-252 / TO-262	DFN-8(5×6)

PIN CONFIGURATION



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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	P_D	56	W
	TO-252		44	
	TO-263		54	
	DFN-8(5x6)		21	
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage 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	θ_{JA}	62.5	$^\circ\text{C/W}$
	TO-252		110	
	TO-263		62	
	DFN-8(5x6)		46	
Junction to Case	TO-220F	θ_{JC}	2.66	$^\circ\text{C/W}$
	TO-252		3.4	
	TO-263		1.24	
	DFN-8(5x6)		6	

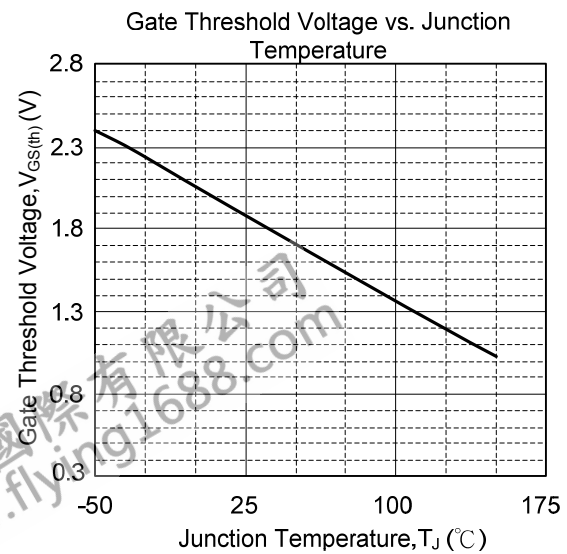
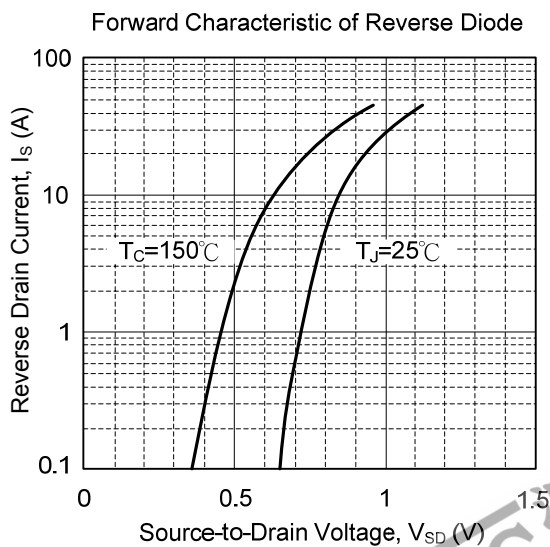
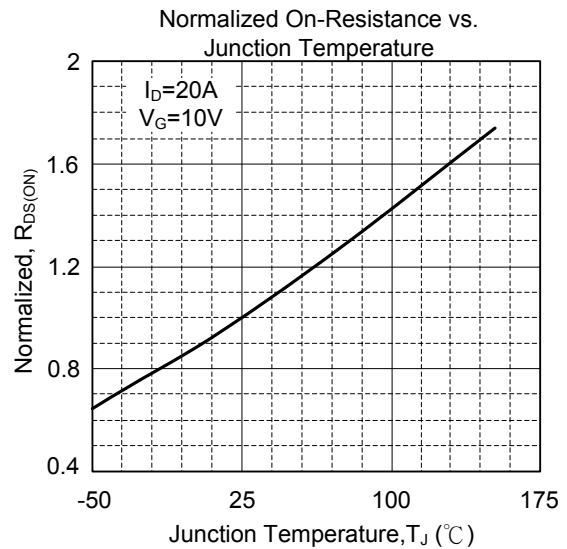
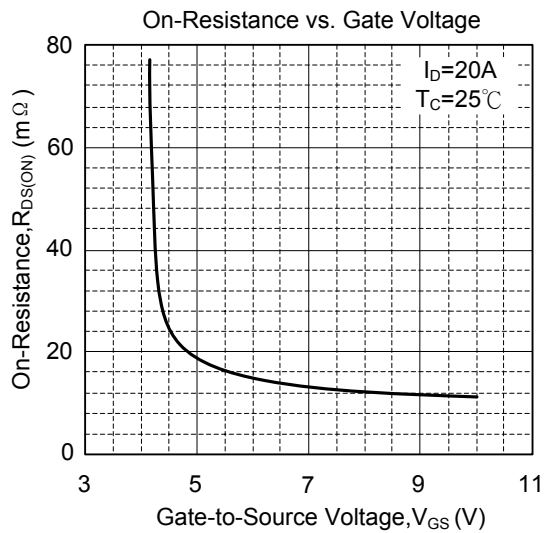
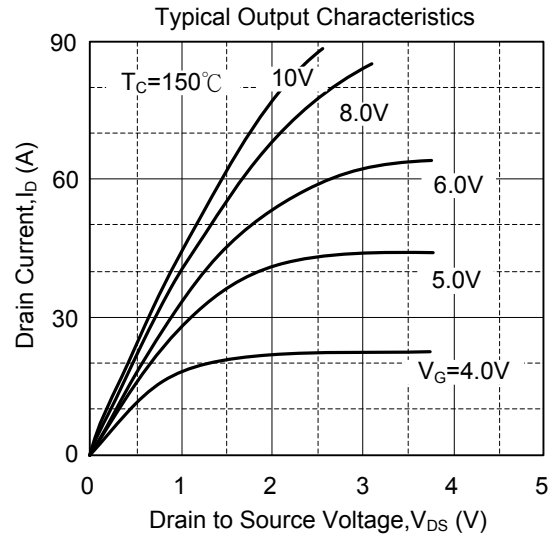
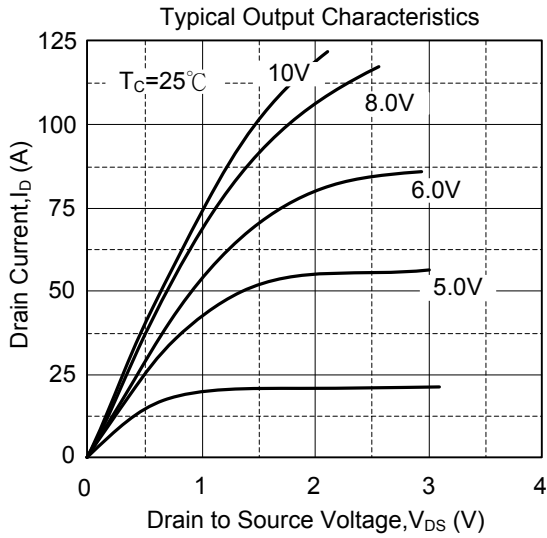
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20 V			±100	nA
Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =1mA		0.026		V/°C
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1		3	V
Static Drain-Source On-Resistance(Note 1)	R _{DS(ON)}	V _{GS} =10V, I _D =20A			12	mΩ
		V _{GS} =4.5V, I _D =15A			25	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		1135		pF
Output Capacitance	C _{OSS}			200		
Reverse Transfer Capacitance	C _{RSS}			135		
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DS} =20V, V _{GS} =4.5V, I _D =20A (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} =10V, V _{DS} =15V, R _D =0.75Ω, I _D =20A, R _G =3.3Ω (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 =45A, V _{GS} =0V			1.3	V
Reverse Recovery Time	t _{RR}	I _S =20A, V _{GS} =0V, dI/dt=100A/μs		23.3		ns
Reverse Recovery Charge	Q _{RR}				16	

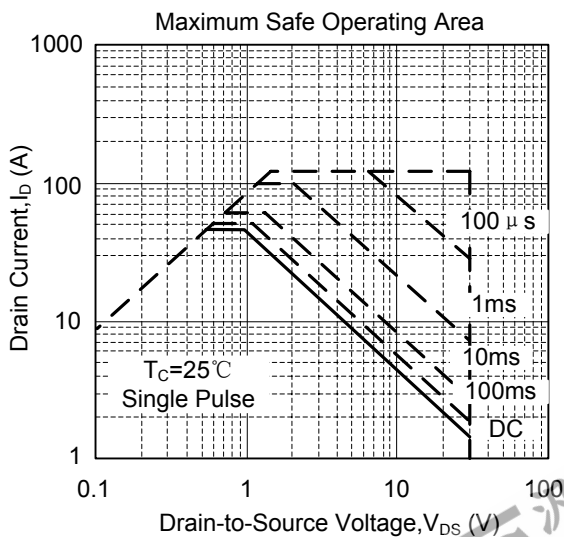
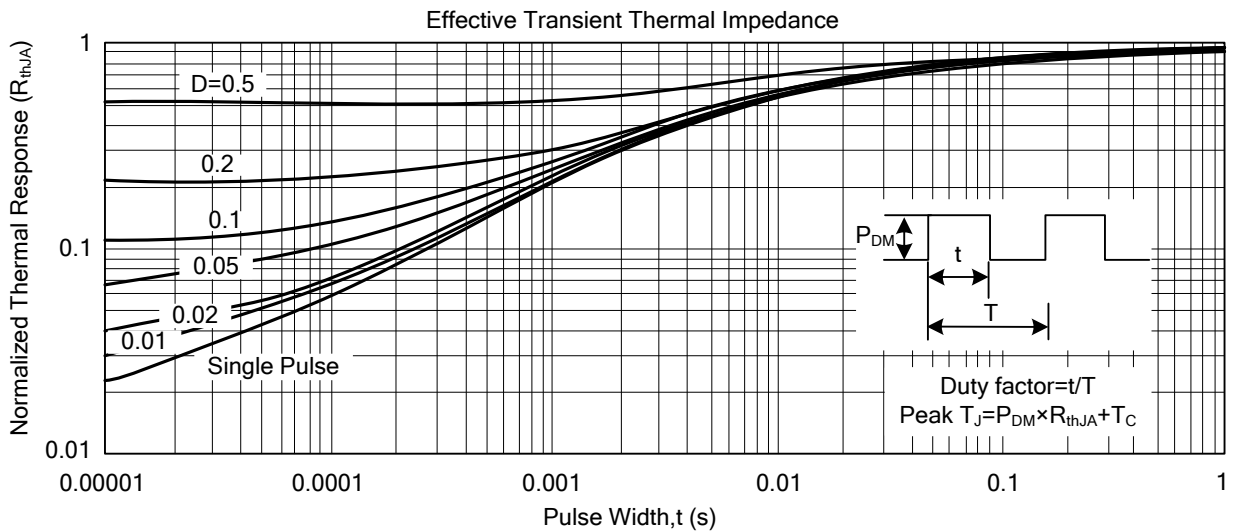
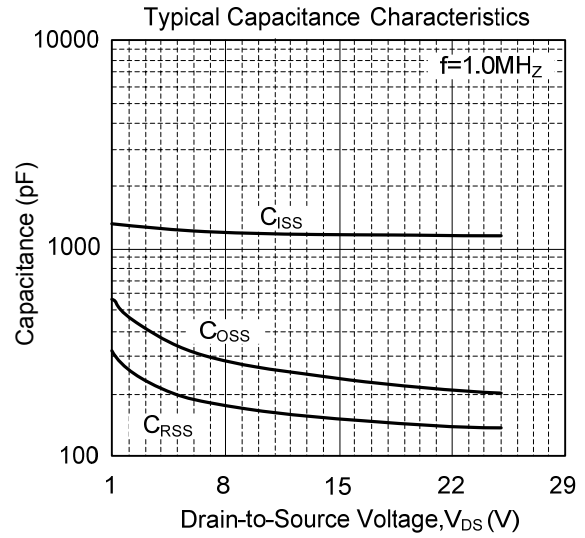
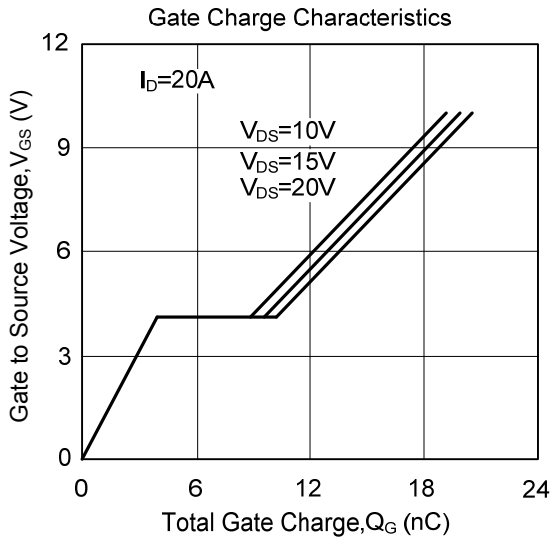
Note: 1. Pulse width ≤ 300us , duty cycle ≤ 2%.

2. Essentially independent of operating temperature

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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