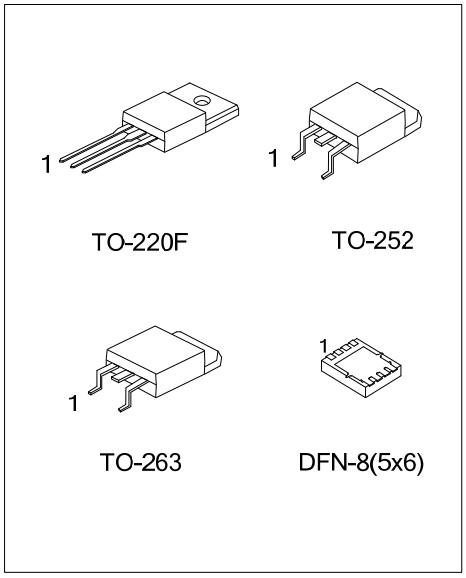
UT60T03

Power MOSFET

30V, 45A N-CHANNEL ENHANCEMENT MODE



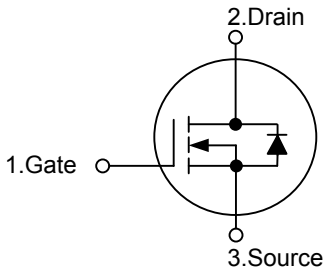
■ DESCRIPTION

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

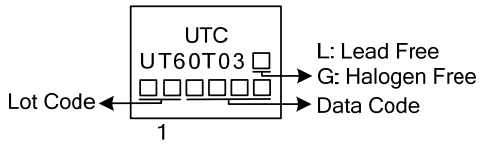
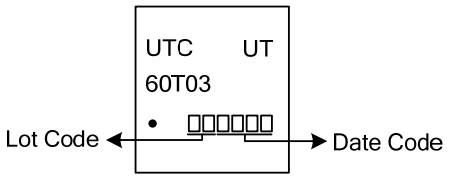
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT60T03L-TF3-T	UT60T03G-TF3-T	TO-220F	G	D	S	-	-	-	-	-	Tube
UT60T03L-TF3-R	UT60T03G-TF3-R	TO-220F	G	D	S	-	-	-	-	-	Tape Reel
UT60T03L-TN3-R	UT60T03G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UT60T03L-TQ2-R	UT60T03G-TQ2-R	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(5×6)	S	S	S	G	D	D	D	D	Tape Reel

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

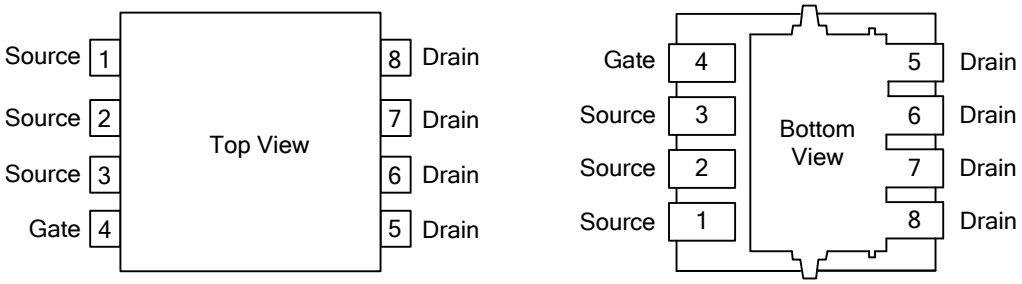
UT60T03L-TF3-T
- (1)Packing Type
- (2)Package Type
- (3)Green Package

(1) R: Tape Reel, T: Tube
(2) TF3: TO-220F, TN3: TO-252, TQ2: TO-263
K08-5060: DFN-8(5×6)
(3) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING

TO-220F / TO-252 / TO-262	DFN-8(5×6)
	

■ PIN CONFIGURATION



DFN-8(5×6)

■ ABSOLUTE MAXIMUM RATINGS(T_J =25°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°C)	TO-220F	P_D	56	W
	TO-252		44	
	TO-263		54	
	DFN-8(5×6)		21	
Junction Temperature		T_J	+150	°C
Strong Temperature		T_{STG}	-55 ~ +175	°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	°C/W
	TO-252		110	
	TO-263		62	
	DFN-8(5×6)		46	
Junction to Case	TO-220F	θ_{JC}	2.66	°C/W
	TO-252		3.4	
	TO-263		1.24	
	DFN-8(5×6)		6	

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

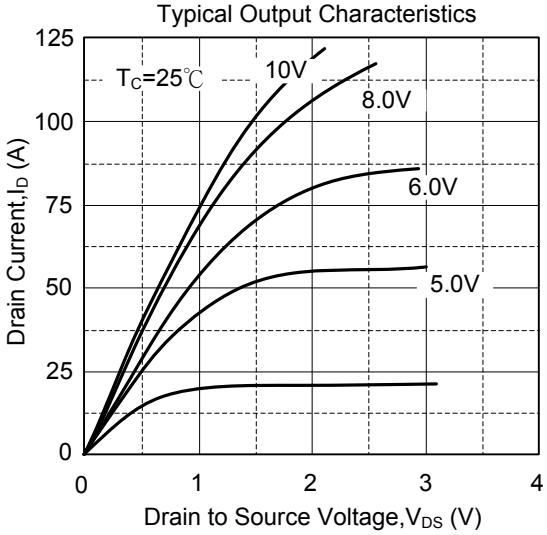
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0 V, I_D=250μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20 V			±100	nA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	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		nC

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

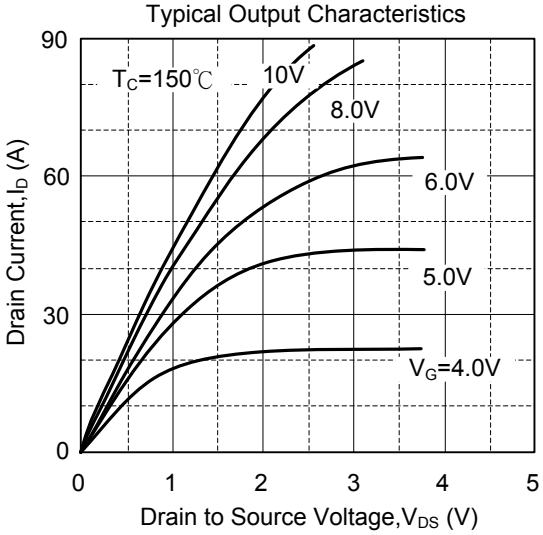
2. Essentially independent of operating temperature

■ TYPICAL CHARACTERISTICS

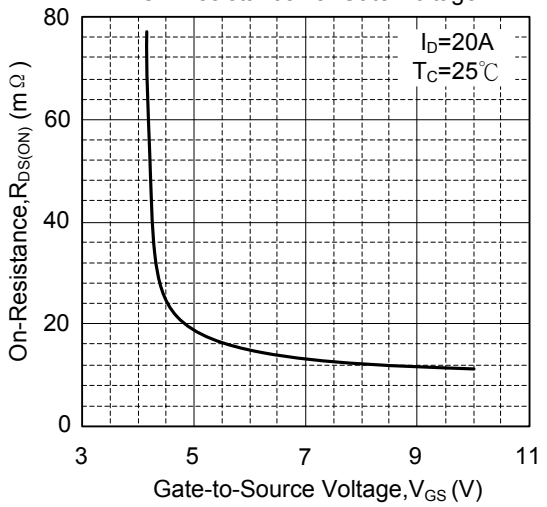
Typical Output Characteristics



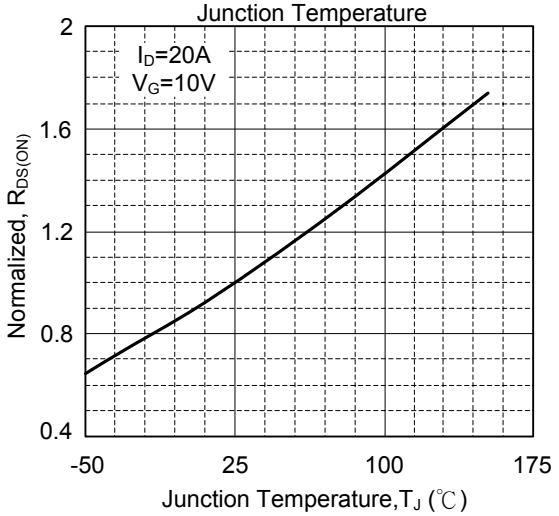
Typical Output Characteristics



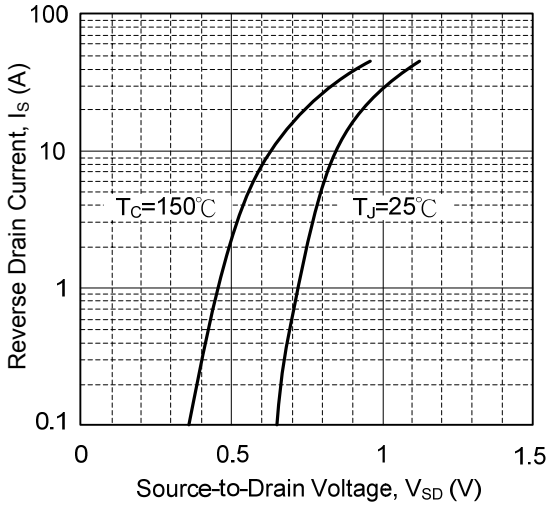
On-Resistance vs. Gate Voltage



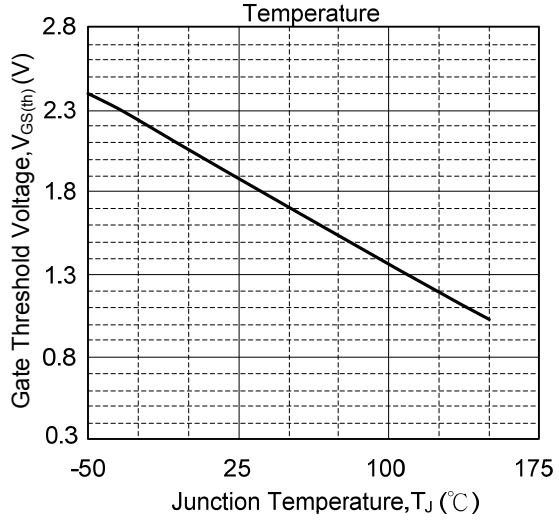
Normalized On-Resistance vs. Junction Temperature



Forward Characteristic of Reverse Diode



Gate Threshold Voltage vs. Junction Temperature



■ TYPICAL CHARACTERISTICS(Cont.)