

UT60N03

Power MOSFET

30V, 60A N-CHANNEL LOGIC LEVEL MOSFET

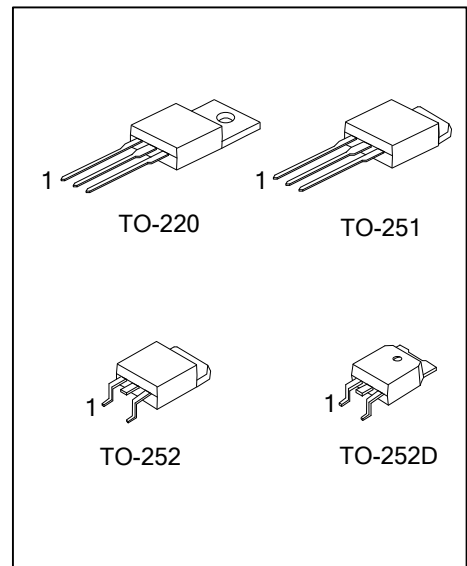
DESCRIPTION

This device employs advanced MOSFET technology and features low gate charge while maintaining low on-resistance.

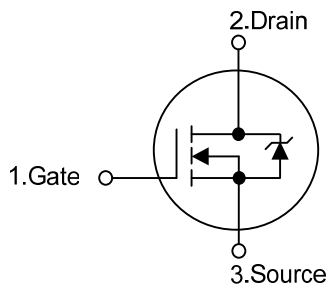
Optimized for switching applications, this device improves the overall efficiency of DC/DC converters and allows operation to higher switching frequencies.

FEATURES

- * $R_{DS(ON)} < 23m\Omega @ V_{GS}=10V, I_D=30A$
- * $R_{DS(ON)} < 30m\Omega @ V_{GS}=4.5V, I_D=19A$
- * Low Capacitance
- * Low Gate Charge
- * Fast Switching Capability
- * Avalanche Energy Specified



SYMBOL



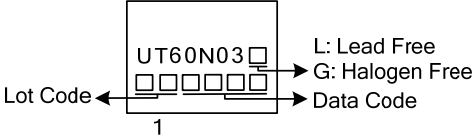
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT60N03L-TA3-T	UT60N03G-TA3-T	TO-220	G	D	S	Tube
UT60N03L-TM3-T	UT60N03G-TM3-T	TO-251	G	D	S	Tube
UT60N03L-TN3-R	UT60N03G-TN3-R	TO-252	G	D	S	Tape Reel
UT60N03L-TND-R	UT60N03G-TND-R	TO-252D	G	D	S	Tape Reel

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

<p>UT60N03L-TA3-R</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) TA3: TO-220, TM3: TO-251, TN3: TO-252</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_c=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current ($V_{GS}=10\text{V}$)		I_D	60	A
Power Dissipation	TO-220	P_D	60	W
	TO-251/TO-252		45	
Derate above 25°C	TO-220		0.4	$\text{W}/^{\circ}\text{C}$
	TO-251/TO-252		0.37	
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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.

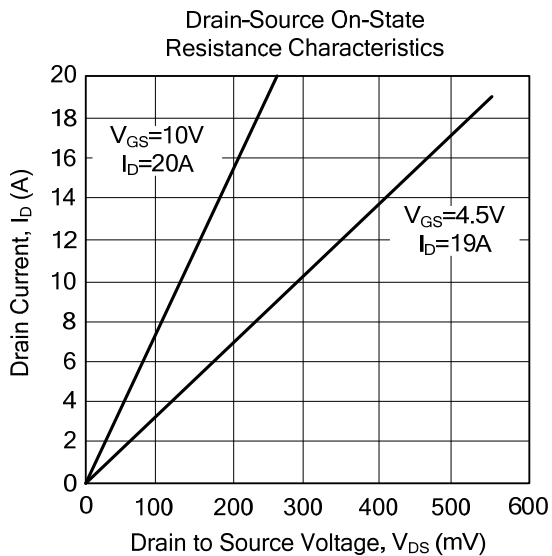
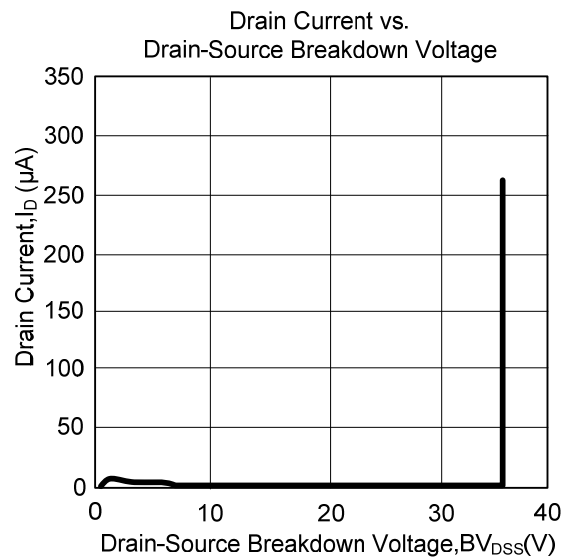
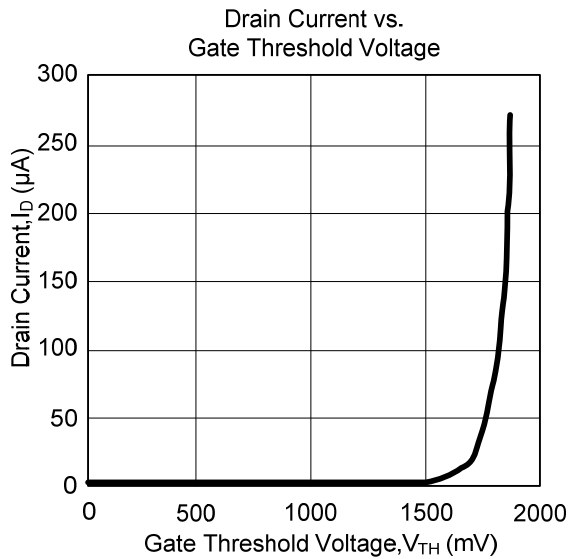
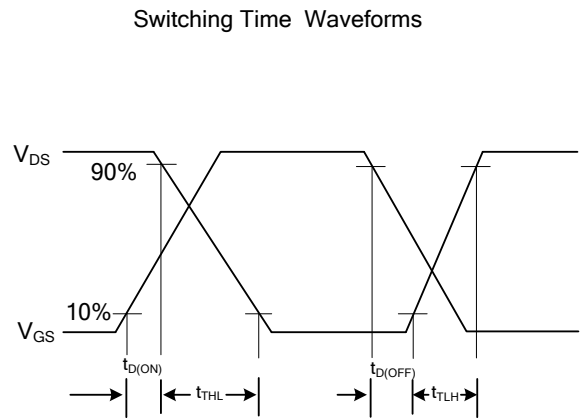
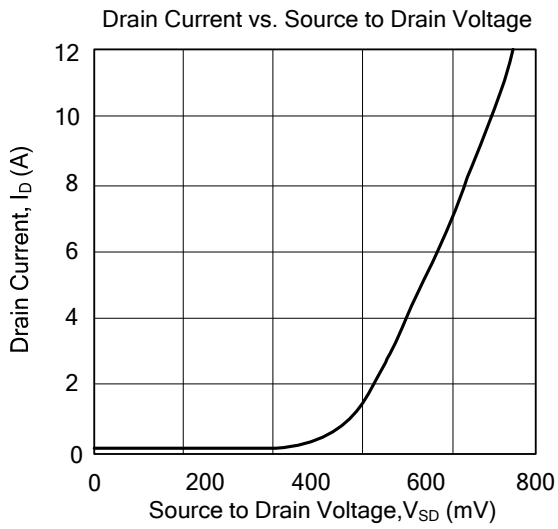
■ THERMAL RESISTANCES CHARACTERISTICS

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220	θ_{JA}	62.5	$^{\circ}\text{C}/\text{W}$
	TO-251/TO-252		100	
Junction to Case	TO-220	θ_{JC}	2.5	$^{\circ}\text{C}/\text{W}$
	TO-251/TO-252		2.73	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =25V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1		3	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A		14	23	mΩ
		V _{GS} =4.5V, I _D =19A		24	30	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1MHz		900		pF
Output Capacitance	C _{OSS}			210		pF
Reverse Transfer Capacitance	C _{RSS}			90		pF
SWITCHING PARAMETERS						
Turn-ON Time	t _(ON)	V _{DD} =15V, I _D =7.9A, R _L =18Ω, V _{GS} =4.5V			90	ns
Turn-ON Delay Time	t _{D(ON)}			11		ns
Turn-ON Rise Time	t _R			49		ns
Turn-OFF Time	t _(OFF)				83	ns
Turn-OFF Delay Time	t _{D(OFF)}			27		ns
Turn-OFF Fall-Time	t _F			28		ns
Turn-ON Time	t _(ON)	V _{DD} =15V, I _D =7.9A, R _L =18Ω, V _{GS} =10V			48	ns
Turn-ON Delay Time	t _{D(ON)}			6		ns
Turn-ON Rise Time	t _R			26		ns
Turn-OFF Time	t _(OFF)				120	ns
Turn-OFF Delay Time	t _{D(OFF)}			52		ns
Turn-OFF Fall-Time	t _F			28		ns
Total Gate Charge	5V	Q _G	V _{GS} =0V~5V, V _{DD} =15V, I _D =19A, I _G =1.0mA	18	28	nC
	10V		V _{GS} =0V~10V, V _{DD} =15V, I _D =19A, I _G =1.0mA	9.6	14	
Threshold Gate Charge	Q _{G(TH)}	V _{GS} =0V~1V, V _{DD} =15V, I _D =19A, I _G =1.0mA	1.0	1.5		nC
Gate-Source Charge	Q _{GS}	V _{DD} =15V, I _D =19A, I _G =1.0mA		3.4		nC
Gate-Drain Charge	Q _{GD}			3.4		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _{SD} =19A			1.25	V
		I _{SD} =10A			1.0	
Reverse Recovery Time	t _{rr}	I _{SD} =9A, di _s /dt =100A/s,			58	ns
Reverse Recovery Charge	Q _{RR}				70	nC

TYPICAL CHARACTERISTICS



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