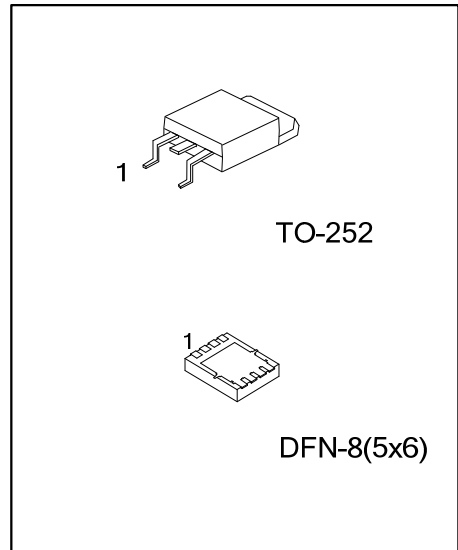




UT3006

Power MOSFET

**55A, 30V N-CHANNEL
ENHANCEMENT MODE
POWER MOSFET**



■ DESCRIPTION

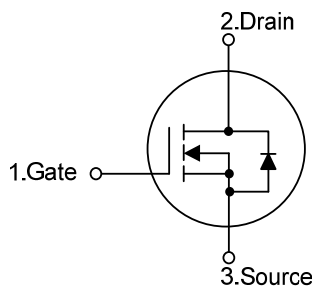
The UTC **UT3006** is an N-channel enhancement MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, cost-effectiveness and high switching speed.

This UTC **UT3006** is suitable for DC/DC converters, etc.

■ FEATURES

- * $R_{DS(ON)} < 9m\Omega$ @ $V_{GS} = 10V, I_D = 30A$
- * High Switching Speed

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT3006L-TN3-R	UT3006G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
-	UT3006G-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>UT3006L-TN3-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) TN3: TO-252, K08-5060: DFN-8(5x6) (3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING

TO-252	DFN-8(5x6)
<p>UTC UT3006</p> <p>Lot Code ← [] [] [] [] → Data Code</p> <p>1</p> <p>L: Lead Free G: Halogen Free</p>	<p>UTC UT 3006</p> <p>Lot Code ← [] [] [] [] → Date Code</p>

■ 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	
Drain Current	Continuous	I _D	T _C =25°C	55	A
	V _{GS} @10V		T _C =100°C	39	A
	Pulsed (Note 2)		I _{DM}	160	A
Power Dissipation (T _C =25°C)		P _D	TO-252	41	W
			DFN-8(5×6)	21	
Junction Temperature		T _J	+175	°C	
Storage Temperature		T _{STG}	-55~+175	°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 test.

■ THERMAL CHARACTERISTICS

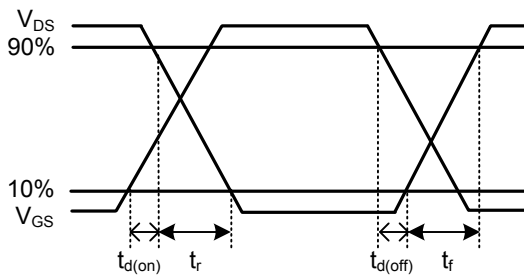
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-252	θ _{JA}	110	°C/W
	DFN-8(5×6)		46	°C/W
Junction to Case	TO-252	θ _{JC}	3	°C/W
	DFN-8(5×6)		6	°C/W

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

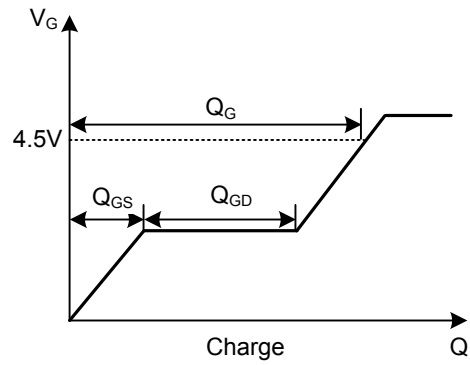
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	30			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =30V, V _{GS} =0V			10	μA
Gate- Source Leakage Current	Forward	I _{GSS}	V _{DS} =0V, V _{GS} =+20V			+100	nA
	Reverse		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-State Resistance (Note)		R _{DS(ON)}	V _{GS} =10V, I _D =30A			9	mΩ
			V _{GS} =4.5V, I _D =20A			16	mΩ
Forward Transconductance		g _{FS}	V _{DS} =10V, I _D =30A		42		S
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		700	1120	pF
Output Capacitance		C _{OSS}			215		pF
Reverse Transfer Capacitance		C _{RSS}			155		pF
SWITCHING PARAMETERS							
Total Gate Charge (Note)		Q _G	V _{GS} =4.5V, V _{DS} =24V, I _D =30A		13	21	nC
Gate to Source Charge		Q _{GS}			2.5		nC
Gate to Drain Charge		Q _{GD}			9.5		nC
Gate Resistance		R _G	f=1.0MHz		1.9		Ω
Turn-ON Delay Time (Note)		t _{D(ON)}	V _{DS} =15V, I _D =30A, R _G =3.3Ω, V _{GS} =10V, R _D =0.5 Ω		8		ns
Rise Time		t _R			85		ns
Turn-OFF Delay Time		t _{D(OFF)}			20.5		ns
Fall-Time		t _F			10		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage (Note)		V _{SD}	I _S =30A, V _{GS} =0V			1.2	V
Body Diode Reverse Recovery Time (Note)		t _{rr}	I _S =10A, V _{GS} =0V,		23		ns
Body Diode Reverse Recovery Charge		Q _{RR}	di/dt=100A/μs		14		μC

Note: Pulse test.

■ TEST CIRCUITS AND WAVEFORMS

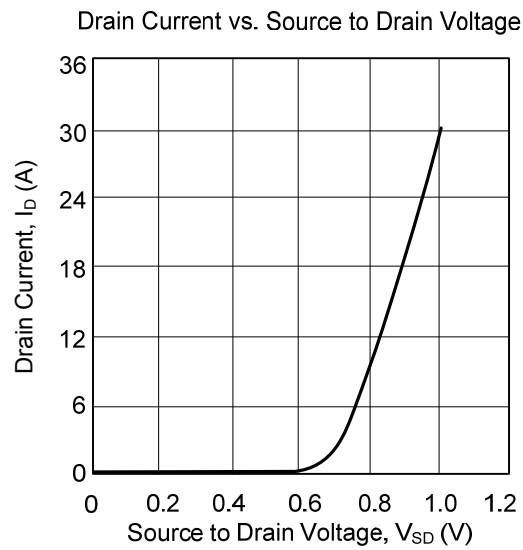


Switching Time Waveform



Gate Charge Waveform

■ TYPICAL CHARACTERISTICS



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