



UT5504

Power MOSFET

P-CHANNEL LOGIC LEVEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

DESCRIPTION

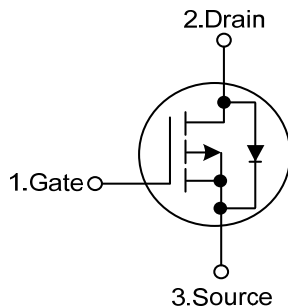
The UTC **UT5504** is a P-channel enhancement mode power MOSFET, providing customers fast switching, ruggedized device design, low on-resistance and cost-effectiveness by UTC's advanced technology.

The UTC **UT5504** can be used in applications such as DC/DC converters, all commercial-industrial surface mount and low voltage devices.

FEATURES

- * Low On-Resistance
- * Simple Drive Requirement
- * Fast Switching Speed

SYMBOL

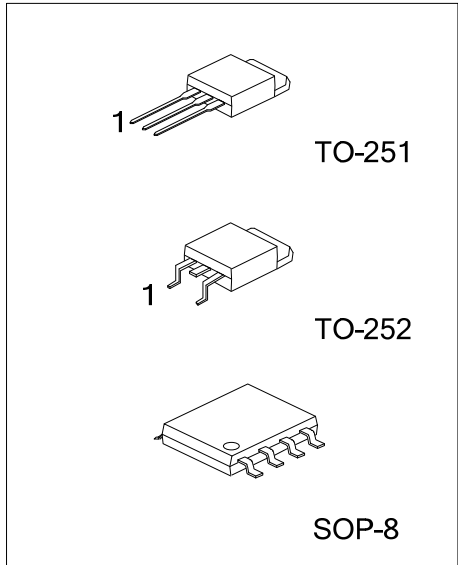


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT5504L-TM3-T	UT5504G-TM3-T	TO-251	G	D	S	-	-	-	-	-	Tube
UT5504L-TN3-T	UT5504G-TN3-T	TO-252	G	D	S	-	-	-	-	-	Tube
UT5504L-TN3-R	UT5504G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UT5504L-S08-T	UT5504G-S08-T	SOP-8	S	S	S	G	D	D	D	D	Tube
UT5504L-S08-R	UT5504G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UT5504L-TM3-R	(1)Packing Type	(1) T: Tube, R: Tape Reel
	(2)Package Type	(2) TM3: TO-251, TN3: TO-252, S08: SOP-8
	(3)Lead Free	(3) L: Lead Free, G: Halogen Free



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$ -8	A
		$T_C=70^\circ\text{C}$ -6	
Pulsed Drain Current	I_{DM}	-32	A
Power Dissipation	P_D	TO-251/TO-252 41	W
		SOP-8 5	
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 DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	TO-251/TO-252 75	$^\circ\text{C/W}$
		SOP-8 50	
Junction to Case	θ_{JC}	TO-251/TO-252 3	$^\circ\text{C/W}$
		SOP-8 25	

Notes: 1. Pulse width limited by maximum junction temperature.

2. Duty cycle $\leq 1\%$

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A$, $V_{GS}=0V$	-40			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-32V$, $V_{GS}=0V$			1	μA
		$V_{DS}=-30V$, $V_{GS}=0V$, $T_J=125^{\circ}C$			10	
Gate- Source Leakage Current	I_{GSS}	$V_{DS}=0V$, $V_{GS}=\pm 20V$			± 250	nA
On-State Drain Current (Note 1)	$I_{D(ON)}$	$V_{DS}=-5V$, $V_{GS}=-10V$	-32			A
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu A$	-1	-1.5	-2.5	V
Static Drain-Source On-State Resistance (Note 1)	$R_{DS(ON)}$	$V_{GS}=-4.5V$, $I_D=-6A$		65	94	m Ω
		$V_{GS}=-10V$, $I_D=-8A$		45	55	
Forward Transconductance (Note 1)	g_{FS}	$V_{DS}=-10V$, $I_D=-8A$		11		S
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0V$, $V_{DS}=10V$, $f=1MHz$		1078		pF
Output Capacitance	C_{OSS}			131		pF
Reverse Transfer Capacitance	C_{RSS}			100		pF
SWITCHING PARAMETERS (Note 2)						
Total Gate Charge	Q_G	$V_{GS}=-10V$, $V_{DS}=0.5BV_{DSS}$, $I_D=-8A$		91	120	nC
Gate to Source Charge	Q_{GS}			9.6		nC
Gate to Drain Charge	Q_{GD}			4.7		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=-10V$, $V_{DS}=-20V$, $I_D \approx -1A$, $R_{GS}=6\Omega$		28	35	ns
Rise Time	t_R			40	50	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			198	250	ns
Fall-Time	t_F			78	120	ns

■ ELECTRICAL CHARACTERISTICS(Cont.)

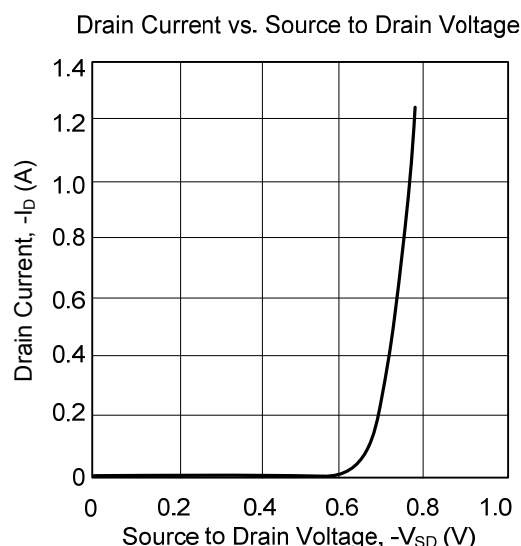
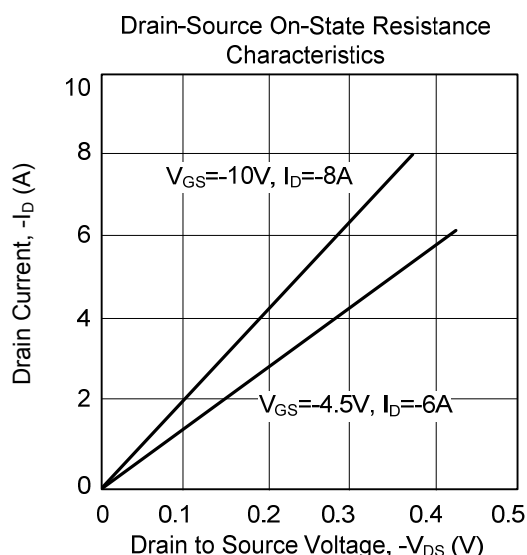
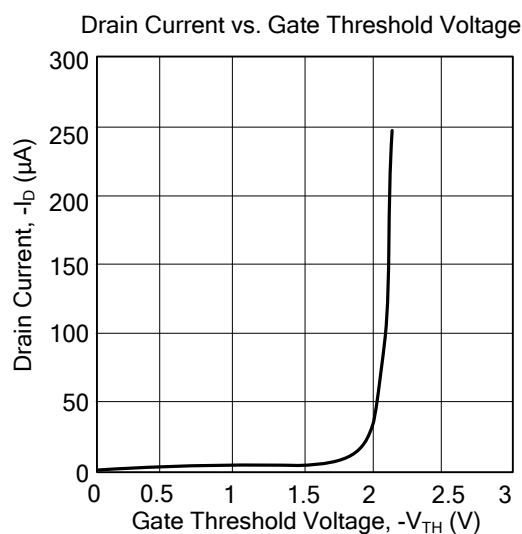
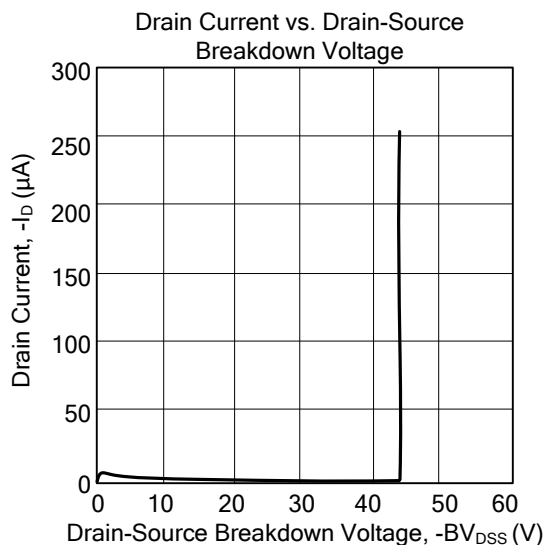
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage (Note 1)	V_{SD}	$I_F=I_S, V_{GS}=0V$			-1	V
Reverse Recovery Time	t_{RR}	$I_F=-5A, dI_F/dt=100A/\mu s$		15.5		ns
Reverse Recovery Charge	Q_{RR}			7.9		nC
Continuous Current	I_S				-8	A
Pulsed Current (Note 3)	I_{SM}				-32	A

Note: 1. Pulse test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

2. Independent of operating temperature.

3. Pulse width limited by maximum junction temperature.

TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.