



UT5504

Power MOSFET

P-CHANNEL LOGIC LEVEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

DESCRIPTION

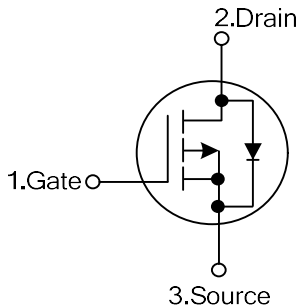
The UTC **UT5504** is a P-channel enhancement mode power MOSFET, providing customers fast switching, ruggedized device design, low on-resistance and cost-effectiveness by UTC's advanced technology.

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

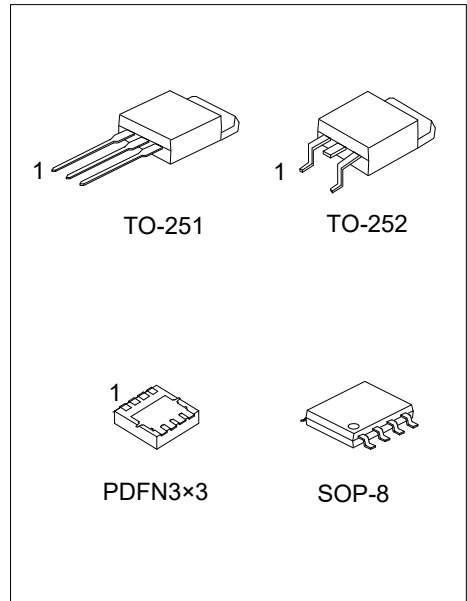


ORDERING INFORMATION

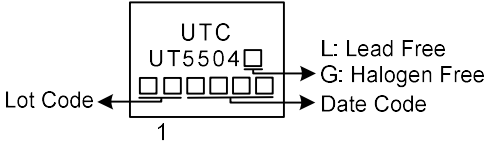
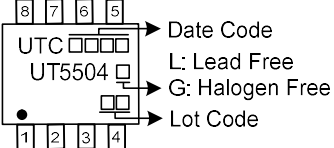
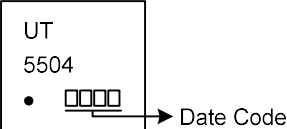
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT5504L-TM3-T	UT5504G-TM3-T	TO-251	G	D	S	-	-	-	-	-	Tube
UT5504L-TN3-R	UT5504G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UT5504L-S08-R	UT5504G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel
UT5504L-P3030-R	UT5504G-P3030-R	PDFN3×3	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UT5504G-TM3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TM3: TO-251, TN3: TO-252, S08: SOP-8 P3030: PDFN3×3</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING

TO-251 / TO-252	SOP-8
 <p>UTC UT5504 □ □ □ □ □ □ □ 1</p> <p>Lot Code ←</p> <p>→ L: Lead Free → G: Halogen Free → Date Code</p>	 <p>8 7 6 5 UTC □ □ □ □ UT5504 □ □ □ □ □ ● □ □ □ □ 1 2 3 4</p> <p>→ Date Code → L: Lead Free → G: Halogen Free → Lot Code</p>
PDFN3×3	-
 <p>UT 5504 ● □ □ □ □</p> <p>→ Date Code</p>	-

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°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°C	-8	A
		T _C =70°C	-6	A
Pulsed Drain Current	I _{DM}	-32	A	
Single Pulsed Avalanche Energy (Note 3)	E _{AS}	77	mJ	
Power Dissipation	P _D	TO-251/TO-252	41	W
		SOP-8	1.6	W
		PDFN3×3	26	W
Junction Temperature	T _J	+150	°C	
Storage Temperature	T _{STG}	-55 ~ +150	°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. Repetitive Rating: Pulse width limited by maximum junction temperature.

3. L = 30mH, I_{AS} = 2.26A, V_{DD} = 20V, R_G = 25Ω Starting T_J = 25°C

■ THERMAL DATA (NOTE 3)

PARAMETER	SYMBOL	RATINGS	UNIT	
Junction to Ambient	θ _{JA}	TO-251/TO-252	50	°C/W
		SOP-8	90	°C/W
		PDFN3×3	75	°C/W
Junction to Case	θ _{JC}	TO-251/TO-252	3	°C/W
		SOP-8	78	°C/W
		PDFN3×3	4.8	°C/W

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

2. Duty cycle ≤ 1%

3. Device mounted on FR-4 substrate P_C board, 2oz copper, with 1inch square copper plate.

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

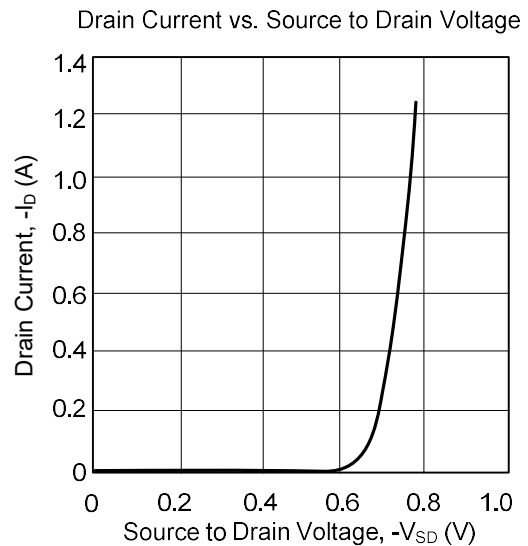
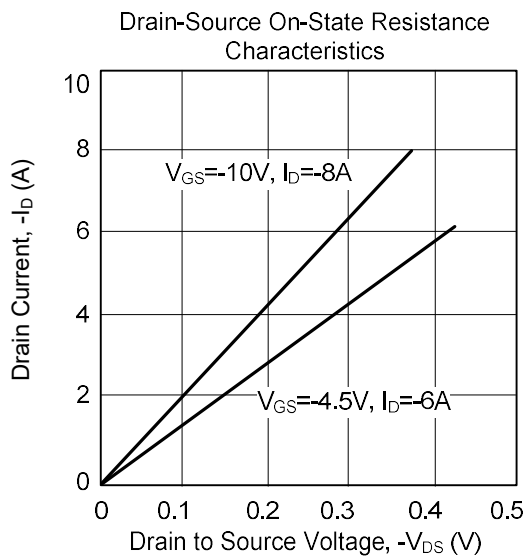
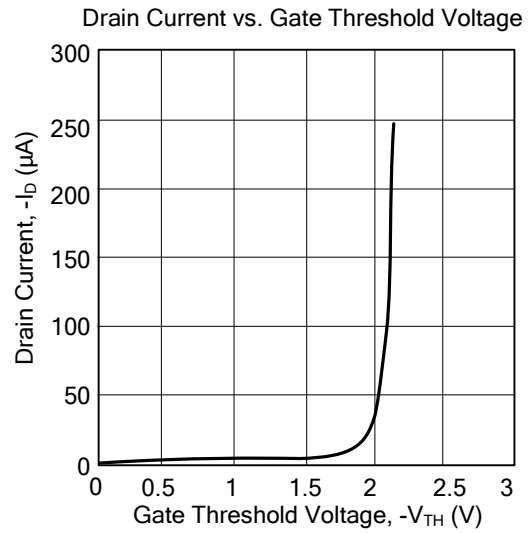
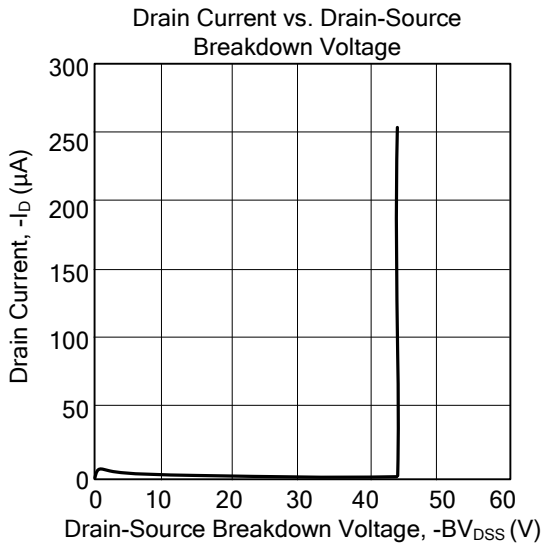
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250μA, V _{GS} =0V	-40			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-32V, V _{GS} =0V			1	μA
		V _{DS} =-30V, V _{GS} =0V, T _J =125°C			10	
Gate- Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±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 =-250μA	-1.0		-2.5	V
Static Drain-Source On-State Resistance (Note 1)	R _{Ds(ON)}	V _{GS} =-10V, I _D =-8.0A		38	55	mΩ
		V _{GS} =-4.5V, I _D =-6.0A		55	94	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =-10V, f=1MHz		860		pF
Output Capacitance	C _{OSS}			160		pF
Reverse Transfer Capacitance	C _{RSS}			140		pF
SWITCHING PARAMETERS (Note 2)						
Total Gate Charge	Q _G	V _{GS} =-10V, V _{DS} =0.5BV _{DSS} , I _D =-8.0A		25	120	nC
Gate to Source Charge	Q _{GS}			5.8		nC
Gate to Drain Charge	Q _{GD}			4.8		nC
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =-10V, V _{DS} =-20V, I _D = -8.0A, R _{GS} =6Ω		7.2	35	ns
Rise Time	t _R			17.6	50	ns
Turn-OFF Delay Time	t _{D(OFF)}			38	250	ns
Fall-Time	t _F			24	120	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I _S				-8	A
Pulsed Current (Note 3)	I _{SM}				-32	A
Drain-Source Diode Forward Voltage (Note 1)	V _{SD}	I _F =I _S , V _{GS} =0V			-1.2	V
Reverse Recovery Time	t _{rr}	I _F =-5.0A, di _F /dt=100A/μs		98		ns
Reverse Recovery Charge	Q _{rr}				220	

Notes: 1. Pulse test: Pulse Width ≤ 300μs, Duty cycle ≤ 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. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.