



UNISONIC TECHNOLOGIES CO., LTD

UT9564

Power MOSFET

-40V, -7.3A P-CHANNEL
ENHANCEMENT MODE POWER
MOSFET

■ DESCRIPTION

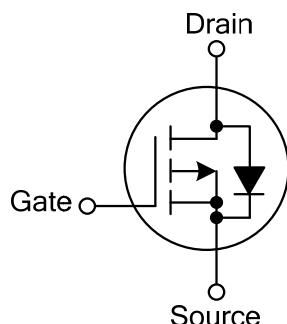
The UTC **UT9564** is a P-ch enhancement mode power MOSFET and it uses UTC perfect technology to provide customers with fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The UTC **UT9564** is ideal for applications such as low voltage applications, DC/DC converters and all commercial-industrial surface mount applications.

■ FEATURES

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

■ SYMBOL



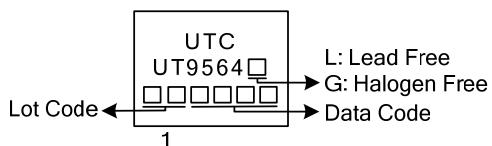
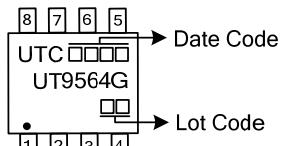
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT9564L-TN3-R	UT9564G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
-	UT9564G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UT9564L-TN3-T	(1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) TN3: TO-252, S08: SOP-8 (3) L: Lead Free, G: Halogen Free and Lead Free
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■ MARKING

TO-252	SOP-8
 <p>Diagram showing the marking for a TO-252 package. It features a central box labeled "UTC UT9564G". Below the box, there are four small squares representing the data code. To the left of the box, the text "Lot Code" is followed by a left-pointing arrow and the number "1". To the right of the box, two arrows point to the right: one pointing to the text "L: Lead Free" and another pointing to the text "G: Halogen Free".</p>	 <p>Diagram showing the marking for an SOP-8 package. It features a central box labeled "UTC UT9564G". Above the box, there are four small squares representing the date code. To the right of the box, two arrows point to the right: one pointing to the text "Date Code" and another pointing to the text "Lot Code". Below the package, the numbers "1", "2", "3", and "4" are arranged vertically.</p>

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 25	V
Continuous Drain Current (Note 2)	I_D	-7.3	A
		-5.9	A
Pulsed Drain Current (Note 1)	I_{DM}	-30	A
Power Dissipation ($T_A=25^\circ C$)	P_D	2	W
SOP-8		2.5	
Linear Derating Factor		0.02	W/ $^\circ C$
Junction Temperature	T_J	-55 ~ 150	$^\circ C$
Storage Temperature	T_{STG}	-55 ~ 150	$^\circ C$

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 (Note 2)	θ_{JA}	62.5	$^\circ C/W$
SOP-8		50	

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

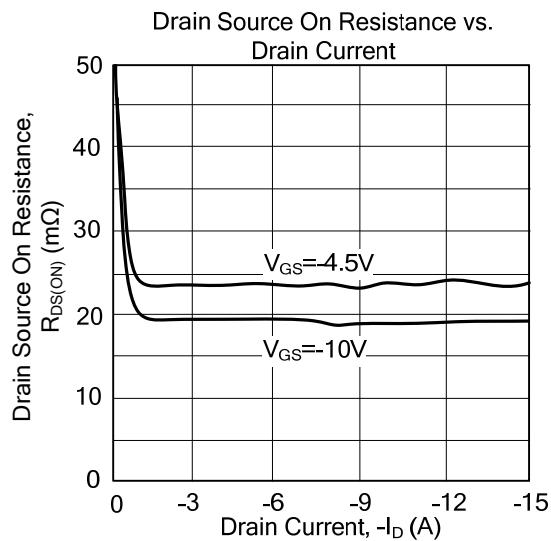
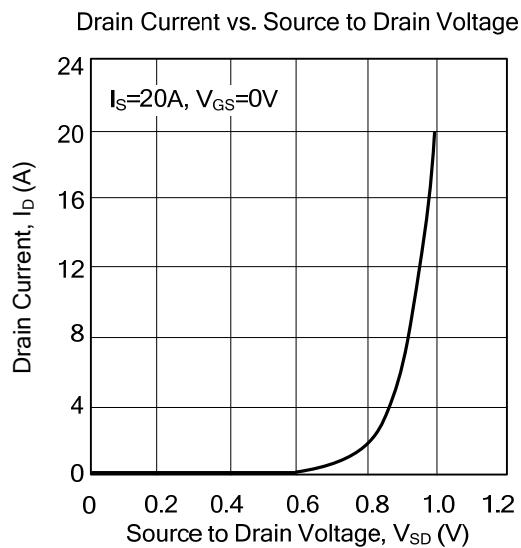
2. Surface mounted on 1 in² copper pad of FR4 board, t ≤ 10sec; 125°C /W when mounted on Min. copper pad.

■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ C$, 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
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C, $I_D=-1mA$		-0.03		$^\circ C/V$
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-40V, V_{GS}=0V, T_J=25^\circ C$			-1	μA
		$V_{DS}=-32V, V_{GS}=0V, T_J=70^\circ C$			-25	
Gate- Source Leakage Current	I_{GSS}	$V_{GS}=\pm 25V$			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1		-3	V
Static Drain-Source On-State Resistance (Note)	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-7A$			28	$m\Omega$
		$V_{GS}=-4.5V, I_D=-5A$			40	
Forward Transconductance	g_{FS}	$V_{DS}=-10V, I_D=-7A$		13		S
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=-25V, f=1.0MHz$		2240	3600	pF
Output Capacitance	C_{OSS}			300		pF
Reverse Transfer Capacitance	C_{RSS}			250		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note)	Q_G	$V_{GS}=-4.5V, V_{DS}=-32V, I_D=-7A$		27	43	nC
Gate to Source Charge	Q_{GS}			6		nC
Gate to Drain Charge	Q_{GD}			14		nC
Turn-ON Delay Time (Note)	$t_{D(ON)}$			14		ns
Rise Time	t_R	$V_{GS}=-10V, V_{DS}=-20V, I_D=-1A, R_G=3.3\Omega, R_D=20\Omega$		8		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			46		ns
Fall-Time	t_f			17		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				-7.3	A
Maximum Body-Diode Pulsed Current	I_{SM}				-30	A
Drain-Source Diode Forward Voltage (Note)	V_{SD}	$I_S=-2A, V_{GS}=0V$			-1.2	V
Reverse Recovery Time (Note)	t_{RR}	$I_S=-7A, V_{GS}=0V, dl/dt=100A/\mu s$		144		ns
Reverse Recovery Charge	Q_{RR}			110		nC

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

- TYPICAL CHARACTERISTICS



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