



UT9564

Power MOSFET

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

DESCRIPTION

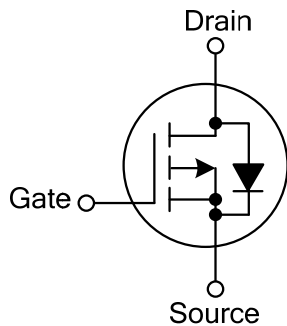
The UTC **UT9564** is a P-ch enhancement mode power MOSFET and it uses UTC perfect technology to provide customers with fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

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

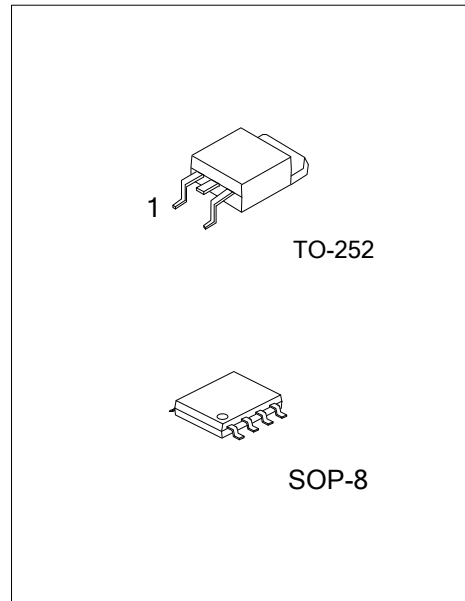


ORDERING INFORMATION

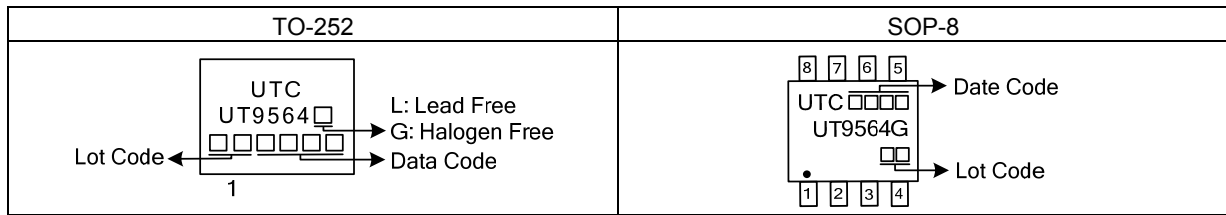
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT9564L-TN3-R	UT9564G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
-	UT9564G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TN3: TO-252, S08: SOP-8</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING



■ 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)	$T_A=25^\circ\text{C}$	I_D	-7.3	A
	$T_A=70^\circ\text{C}$		-5.9	A
Pulsed Drain Current (Note 1)	I_{DM}	-30	A	
Power Dissipation ($T_A=25^\circ\text{C}$)	TO-252	P_D	2	W
	SOP-8		2.5	
Linear Derating Factor		0.02	$W/^\circ\text{C}$	
Junction Temperature	T_J	-55 ~ 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 (Note 2)	TO-252	θ_{JA}	62.5	$^\circ\text{C/W}$
	SOP-8		50	

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

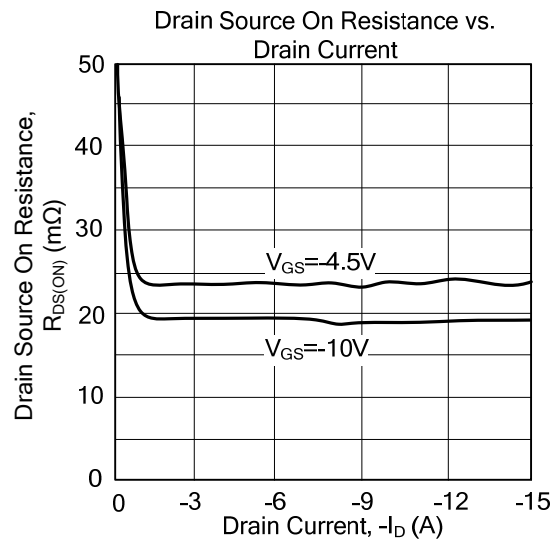
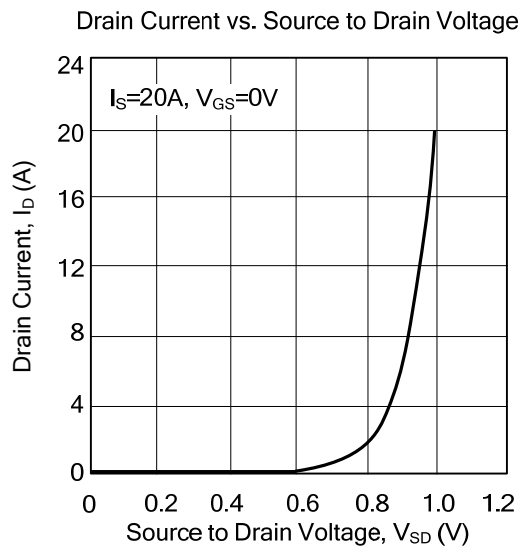
2. Surface mounted on 1 in² copper pad of FR4 board, $t \leq 10\text{sec}$; $125^\circ\text{C}/\text{W}$ when mounted on Min. copper pad.

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

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

Note: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



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