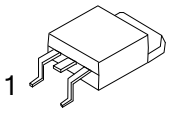
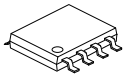
UT9564

Power MOSFET

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



TO-252



SOP-8

■ DESCRIPTION

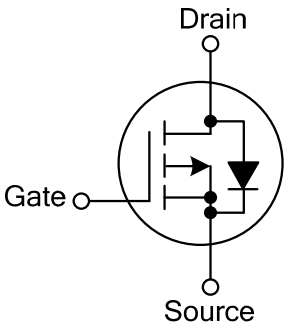
The UTC **UT9564** is a P-ch enhancement mode power MOSFET and it uses UTC perfect technology to provide customers with fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

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



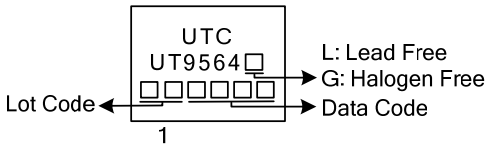
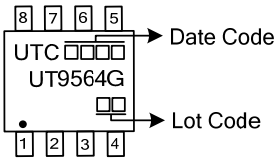
■ ORDERING INFORMATION

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

■ MARKING

TO-252	SOP-8
	

■ 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°C	I_D	-7.3	A
	T_A=70°C		-5.9	A
Pulsed Drain Current (Note 1)		I_{DM}	-30	A
Power Dissipation (T_A=25°C)	TO-252	P_D	2	W
	SOP-8		2.5	
Linear Derating Factor			0.02	W/°C
Junction Temperature		T_J	-55 ~150	°C
Storage Temperature		T_{STG}	-55 ~150	°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	°C/W
	SOP-8		50	

Notes: 1. Pulse width limited by Max. junction temperature.
2. Surface mounted on 1 in^2 copper pad of FR4 board, t ≤10sec; 125°C /W when mounted on Min. copper pad.

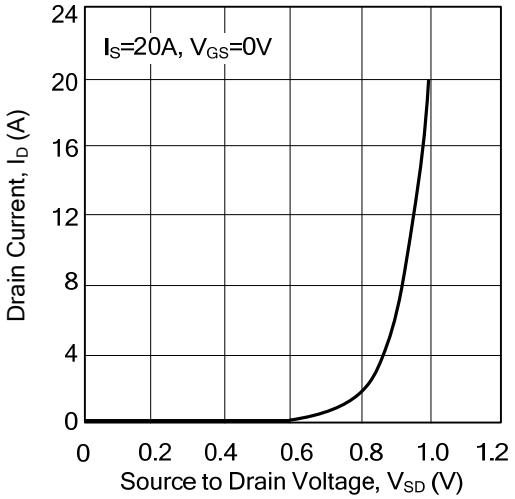
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-250μA, V_{GS}=0V	-40			V
Breakdown Voltage Temperature Coefficient	$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C, I_D=-1mA		-0.03		V/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-40V, V_{GS}=0V, T_J=25°C			-1	μA
		V_{DS}=-32V, V_{GS}=0V, T_J=70°C			-25	
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±25V			±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=-7A			28	mΩ
		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)	$t_{D(ON)}$	V_{GS}=-10V, V_{DS}=-20V, I_D=-1A, R_G=3.3Ω, R_D=20Ω		14		ns
Rise Time	t_R			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, dI/dt=100A/μs		144		ns
Reverse Recovery Charge	Q_{RR}			110		nC

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

■ TYPICAL CHARACTERISTICS

Drain Current vs. Source to Drain Voltage



Drain Source On Resistance vs. Drain Current