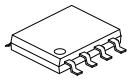
UT4957

Power MOSFET

P-CHANNEL ENHANCEMENT MODE POWER MOSFET



SOP-8

Lead-free: UT4957L
Halogen-free: UT4957G

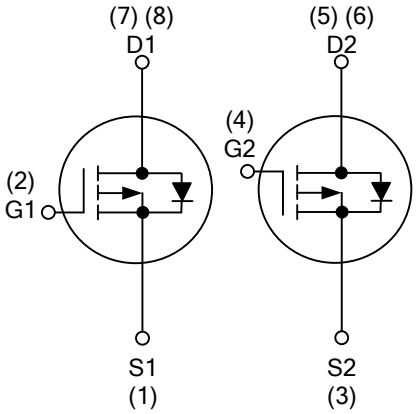
■ DESCRIPTION

The **UT4957** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

■ FEATURES

* $R_{DS(ON)}$<24mΩ @V_{GS}=-10V
* $R_{DS(ON)}$<36mΩ @V_{GS}=4.5V
* Low capacitance
* Low gate charge
* Fast switching capability
* Avalanche energy specified

■ SYMBOL



■ ORDERING INFORMATION

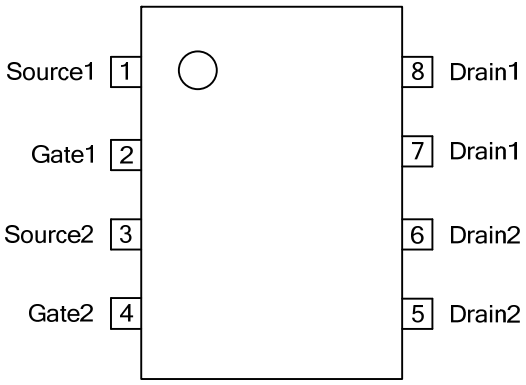
Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
UT4957-S08-R	UT4957L-S08-R	UT4957G-S08-R	SOP-8	Tape Reel
UT4957-S08-T	UT4957L-S08-T	UT4957G-S08-T	SOP-8	Tube

UT4957L-S08-R

(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) R: Tape Reel, T: Tube
(2) S08: SOP-8
(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current		I_D	-7.7	A
Pulsed Drain Current (Note 2)		I_{DM}	-30	A
Power Dissipation	T_a=25°C	P_D	2	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note: 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. Pulse width limited by $T_{J(MAX)}$

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}			62.5	°C/W

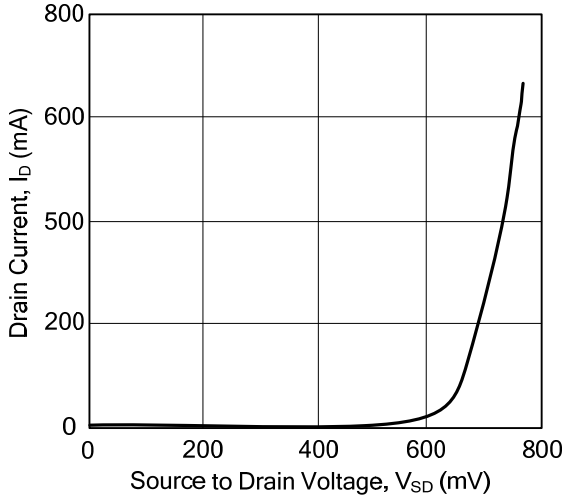
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-30			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25°C, I_D=-1mA		-0.02		V/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=-250μA	-1		-3	V
Static Drain-Source On-Resistance (Note)	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-7A		20	24	mΩ
		V_{GS}=4.5V, I_D=-5A		30	36	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=-25V, V_{GS}=0V, f=1.0MHz		1670	2670	pF
Output Capacitance	C_{OSS}			530		pF
Reverse Transfer Capacitance	C_{RSS}			435		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time (Note)	$t_{D(ON)}$	V_{DS}=-15V, I_D=-1A, V_{GS}=-10V R_G=3.3Ω, R_D=15Ω		14		ns
Turn-ON Rise Time	t_R			11		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			38		ns
Turn-OFF Fall-Time	t_F			25		ns
Total Gate Charge (Note)	Q_G	V_{DS}=-24V, V_{GS}=-4.5V, I_D=-7A		27	45	nC
Gate Source Charge	Q_{GS}			5		nC
Gate Drain Charge	Q_{GD}			18		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V_{SD}	I_S=-1.7A, V_{GS}=0V			-1.2	V
Body Diode Reverse Recovery Time	t_{RR}	I_S=-7A, V_{GS}=0V, dI/dt=100A/μs		35		ns
Body Diode Reverse Recovery Charge	Q_{RR}			34		nC

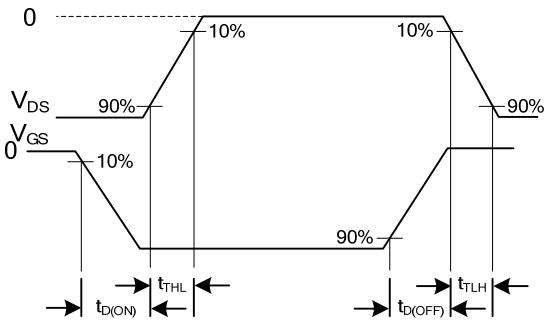
Note: Pulse width <300us , duty cycle <2%.

■ TYPICAL CHARACTERISTICS

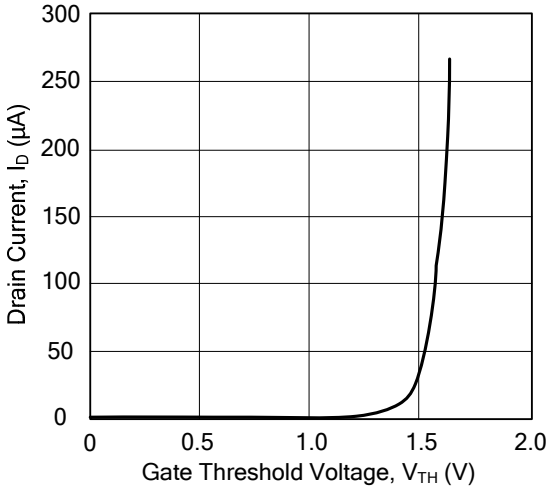
Drain Current vs. Source to Drain Voltage



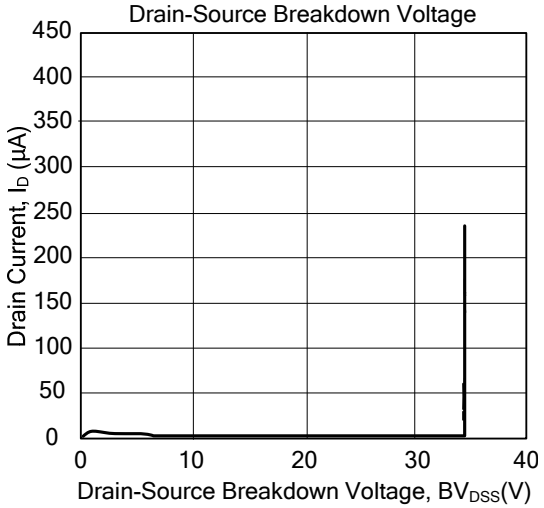
Switching Time Waveforms



Drain Current vs. Gate Threshold Voltage



Drain Current vs.
Drain-Source Breakdown Voltage



Drain-Source On-State
Resistance Characteristics