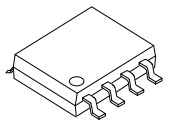
UTM4953-H

POWER MOSFET

-5A, -30V P-CHANNEL MOSFET



SOP-8

■ DESCRIPTION

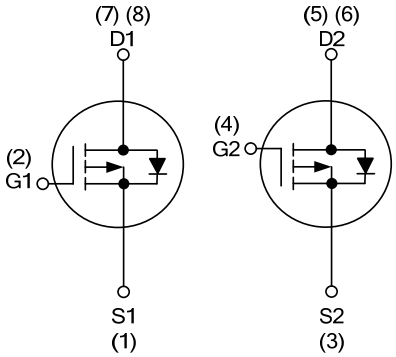
The UTC **UTM4953-H** is a P-Channel MOSFET, it uses UTC's advanced technology to provide the customers with fast switching, etc.

The UTC **UTM4953-H** is suitable for high efficiency fast switching applications, etc.

■ FEATURES

* $R_{DS(ON)}$ < 55mΩ @ V_{GS}=-10V, I_D=-3A
* Fast switching

■ SYMBOL



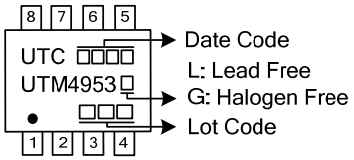
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTM4953L-S08-R	UTM4953G-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

UTM4953G-S08-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_C=25°C unless otherwise noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	-5	A
	T_C=100°C		-3.16	A
Pulsed Drain Current (Note 1)		I_{DM}	-20	A
Power Dissipation	T_C=25°C	P_D	2.1	W
	Derate above 25°C		0.017	W/°C
Junction Temperature		T_J	-55~+150	°C
Storage Temperature Range		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 CHARACTERISTICS

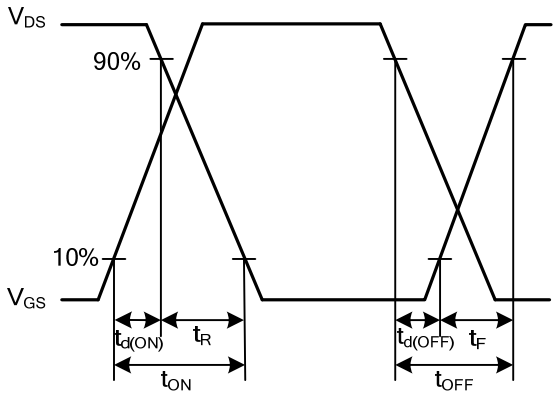
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	60	°C/W

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

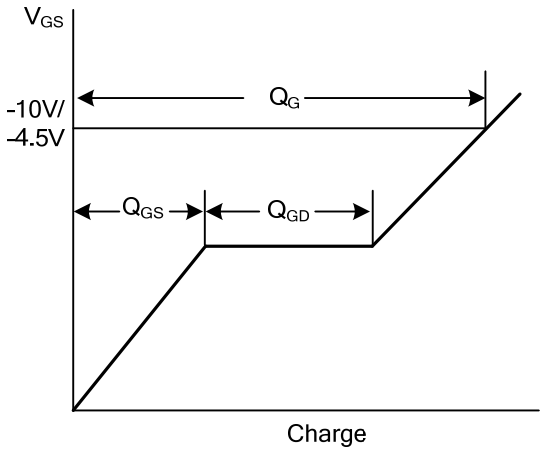
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
BV_{DSS} Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	Reference to 25°C , I_D=-1mA		-0.03		V/°C
Drain-Source Leakage Current		I_{DSS}	V_{DS}=-30V, V_{GS}=0V, T_J=25°C			-1	μA
			V_{DS}=-24V, V_{GS}=0V, T_J=125°C			-10	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+20V, V_{DS}=0V			+100	nA
	Reverse		V_{GS}=-20V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.2	-1.6	-2.5	V
$V_{GS(TH)}$ Temperature Coefficient		$\triangle V_{GS(TH)}$			4		mV/°C
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=-10V, I_D=-3A		45	55	mΩ
			V_{GS}=-4.5V, I_D=-2A		65	85	mΩ
Forward Transconductance		g_{FS}	V_{DS}=-10V, I_D=-3A		3.5		S
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=-15V, f=1.0MHz		560	810	pF
Output Capacitance		C_{OSS}			55	80	pF
Reverse Transfer Capacitance		C_{RSS}			40	60	pF
SWITCHING PARAMETERS							
Total Gate Charge (Note 2, 3)		Q_G	V_{DS}=-15V, V_{GS}=-4.5V, I_D=-3A		5.1	7	nC
Gate to Source Charge (Note 2, 3)		Q_{GS}			2	3	nC
Gate to Drain Charge (Note 2, 3)		Q_{GD}			2.2	4	nC
Turn-ON Delay Time (Note 2, 3)		$t_{D(ON)}$	V_{GS}=-10V, V_{DD}=-15V, I_D=-1A , R_G=6Ω		3.4	6	ns
Rise Time (Note 2, 3)		t_R			10.8	21	ns
Turn-OFF Delay Time (Note 2, 3)		$t_{D(OFF)}$			26.9	51	ns
Fall-Time (Note 2, 3)		t_F			6.9	13	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Diode Forward Voltage		V_{SD}	V_{GS}=0V, I_S=-1A, T_J=25°C			-1	V
Continuous Source Current		I_S	V_G=V_D=0V, Force Current			-5	A
Pulsed Source Current		I_{SM}				-10	A

Notes: 1. Repetitive Rating: Pulsed width limited by maximum junction temperature
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
3. Essentially independent of operating temperature

■ TEST CIRCUITS AND WAVEFORMS



Resistive Switching Waveforms



Gate Charge Waveforms