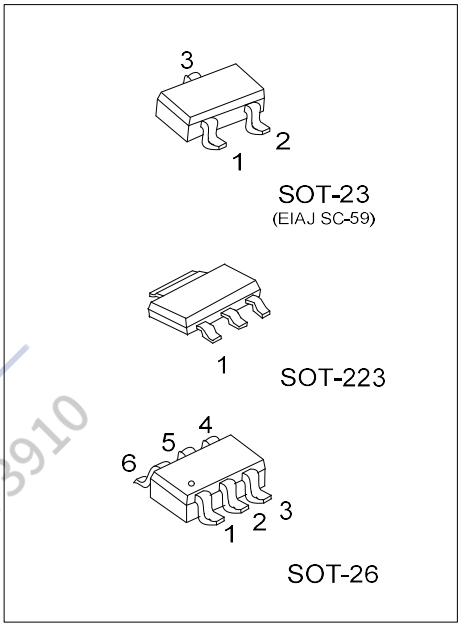
UT6354-H

Power MOSFET

-5.0A, -60V P-CHANNEL SILICON MOSFET



■ DESCRIPTION

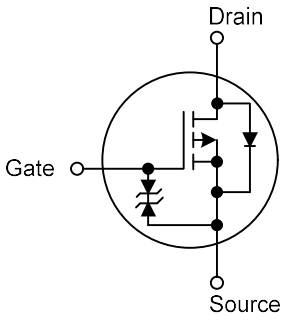
The UTC **UT6354-H** is a P-Channel Silicon MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and low gate charge, etc.

The UTC **UT6354-H** is suitable for general-purpose switching device applications.

■ FEATURES

* $R_{DS(ON)}$ ≤ 100 mΩ @ V_{GS}=-10V, I_D=-2.0A
  $R_{DS(ON)}$ ≤ 135 mΩ @ V_{GS}=-4.5V, I_D=-1.0A
  $R_{DS(ON)}$ ≤ 145 mΩ @ V_{GS}=-4.0V, I_D=-1.0A
* Low gate charge

■ SYMBOL



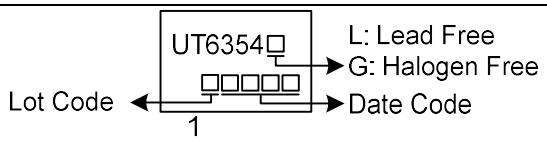
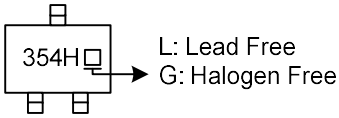
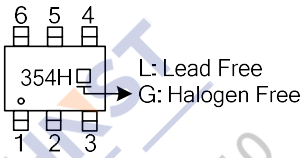
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UT6354L-AA3-R	UT6354G-AA3-R	SOT-223	G	D	S	-	-	-	Tape Reel
UT6354L-AE3-R	UT6354G-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel
UT6354L-AG6-R	UT6354G-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel

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

UT6354G-AA3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AA3: SOT-223, AE3: SOT-23, AG6: SOT-26 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

PACKAGE	MARKING
SOT-223	
SOT-23	
SOT-26	

■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	-5	A
	Pulsed (Note 2)	I_{DM}	-16	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	16	mJ
Power Dissipation	SOT-223	P_D	1.5	W
	SOT-23/ SOT-26		1	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Notes: 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. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. L = 0.1mH, I_{AS} = -18.3A, V_{DD} = -50V, R_G = 25 Ω Starting T_J = 25°C

■ THERMAL DATA

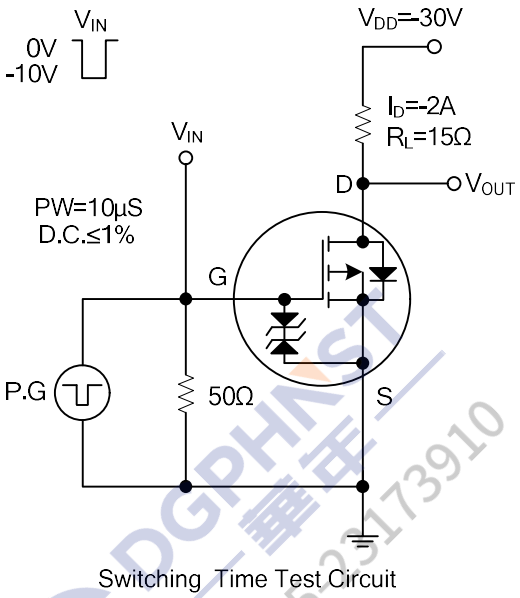
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	θ_{JA}	83	°C/W
	SOT-23/ SOT-26		125	°C/W

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

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

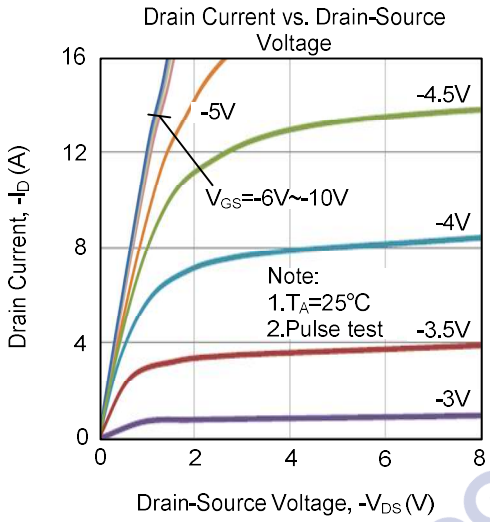
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=-1mA, V_{GS}=0V	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V,V_{DS}=0V			±10	μA
ON CHARACTERISTICS						
Cutoff Voltage	$V_{GS(OFF)}$	V_{DS}=-10V, I_D=-1mA	-1.0		-2.6	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-2.0A		77	100	mΩ
		V_{GS}=-4.5V, I_D=-1.0A		96	135	mΩ
		V_{GS}=-4.0V, I_D=-1.0A		103	145	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=-20V, f=1.0MHz		800		pF
Output Capacitance	C_{OSS}			75		pF
Reverse Transfer Capacitance	C_{RSS}			58		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	V_{DS}=-48V, V_{GS}=-10V, I_D=-4A I_G=-1mA		20		nC
Gate to Source Charge	Q_{GS}			5		nC
Gate to Drain Charge	Q_{GD}			4		nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{DS}=-30V, V_{GS}=-10V, I_D=-4A R_G=3Ω		6		ns
Rise Time	t_R			16		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			26		ns
Fall-Time	t_F			18		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V_{SD}	I_S=-4A,V_{GS}=0V		-0.82	-1.2	V

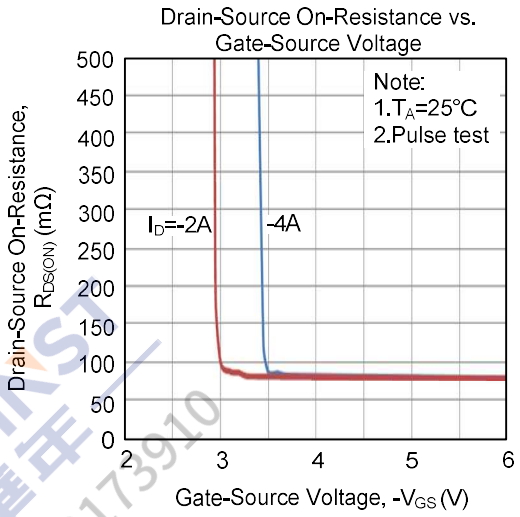
■ TEST CIRCUITS AND WAVEFORMS

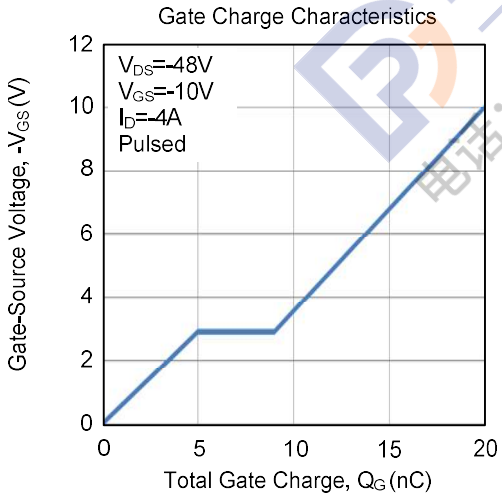


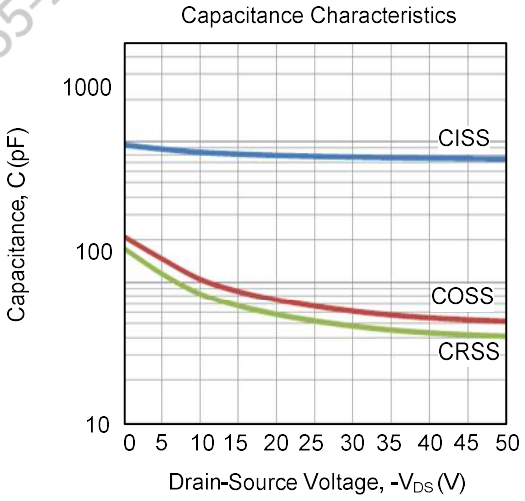
Switching Time Test Circuit

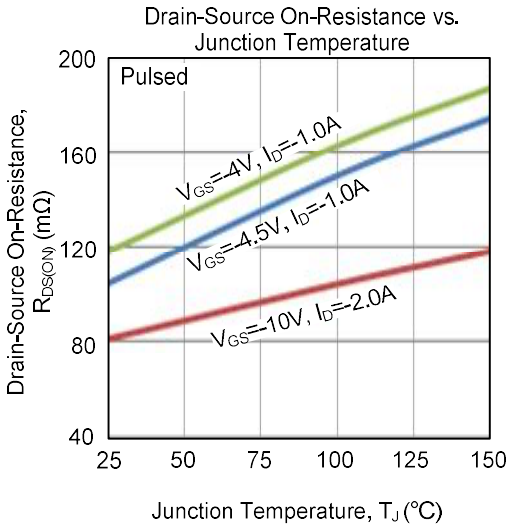
■ TYPICAL CHARACTERISTICS

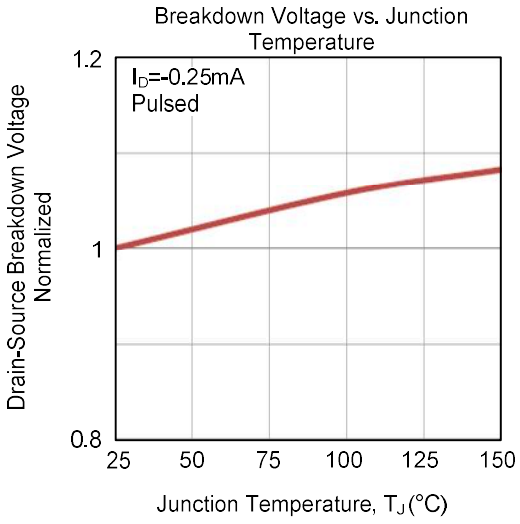






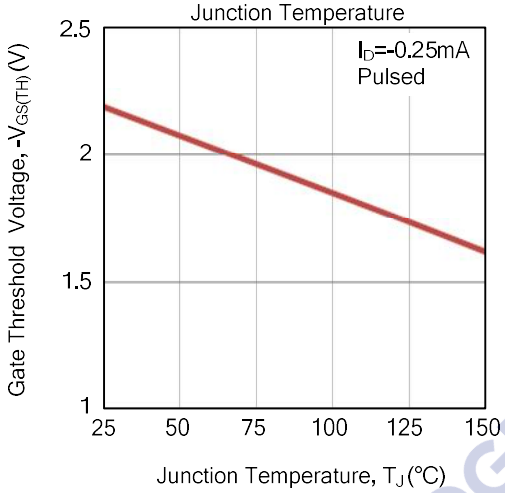




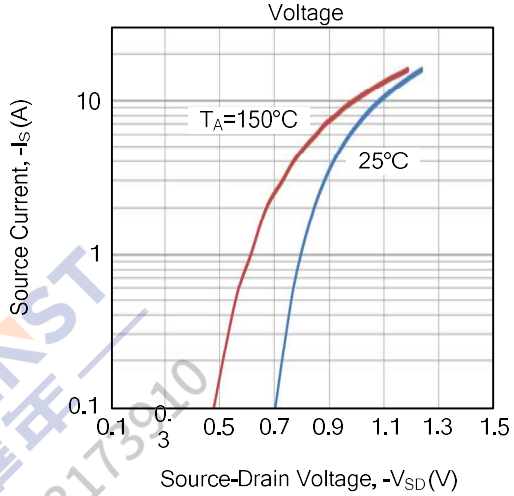


■ TYPICAL CHARACTERISTICS (Cont.)

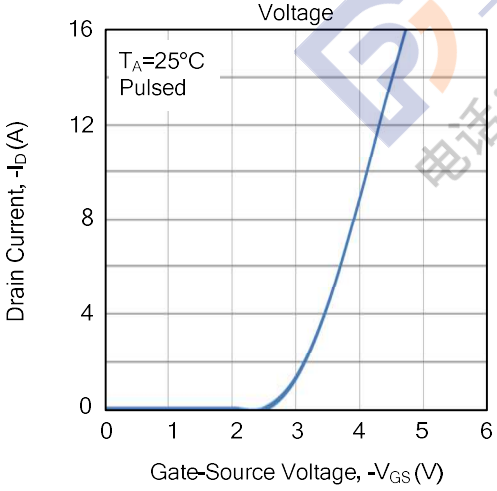
Gate Threshold Voltage vs. Junction Temperature



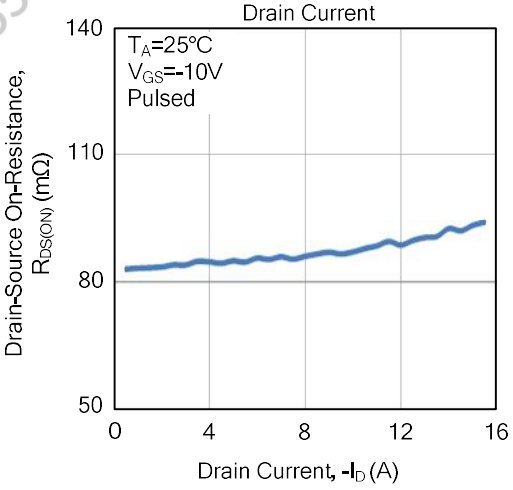
Source Current vs. Source-Drain Voltage



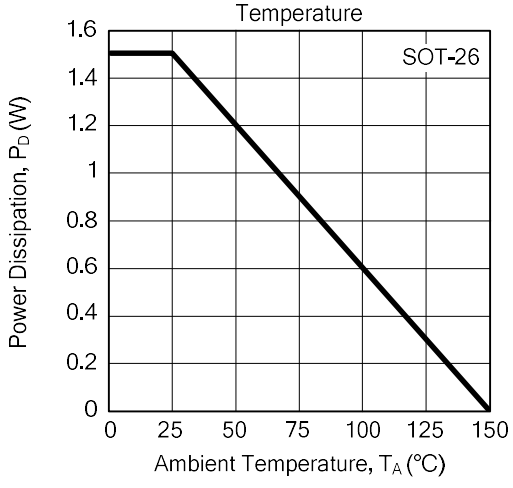
Drain Current vs. Gate-Source Voltage



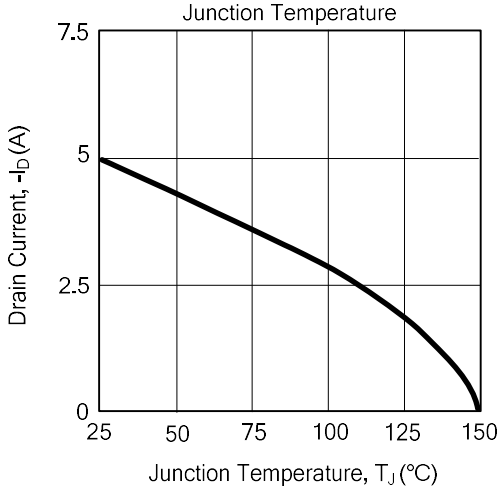
Drain-Source On-Resistance vs. Drain Current



Power Dissipation vs. Junction Temperature



Drain Current vs. Junction Temperature



■ TYPICAL CHARACTERISTICS (Cont.)