



## UT6354-H

Power MOSFET

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

#### DESCRIPTION

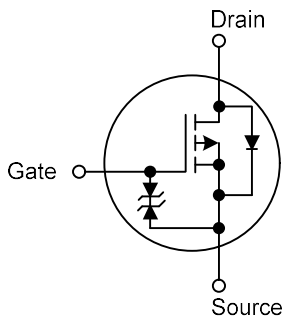
The UTC **UT6354-H** is a P-Channel Silicon MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and low gate charge, etc.

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

#### FEATURES

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

#### SYMBOL

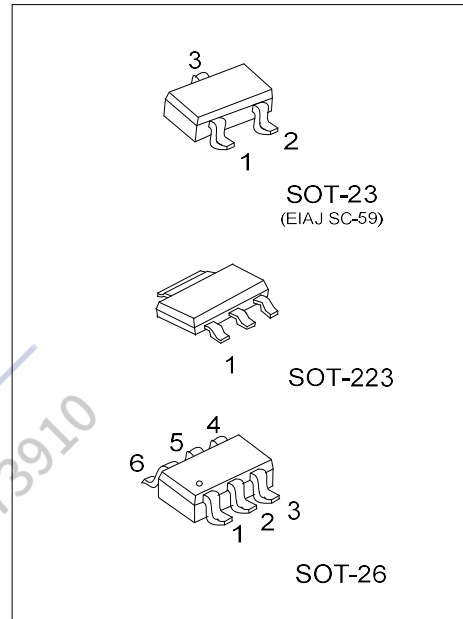


#### ORDERING INFORMATION

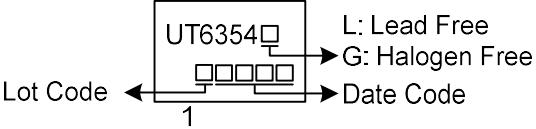
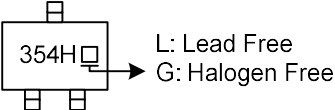
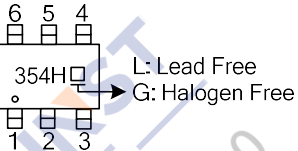
Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UT6354L-AA3-R	UT6354G-AA3-R	SOT-223	G	D	S	-	-	-	Tape Reel
UT6354L-AE3-R	UT6354G-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel
UT6354L-AG6-R	UT6354G-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel

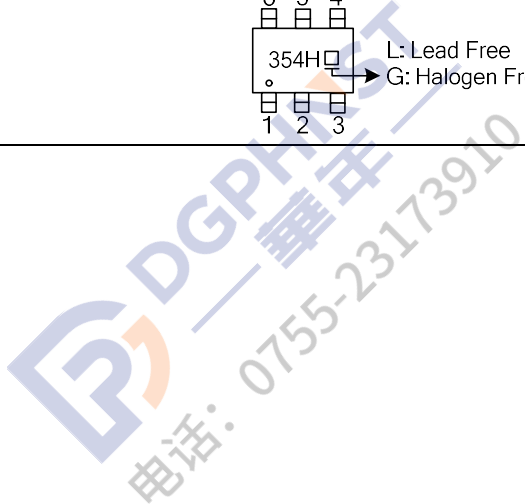
Note: Pin Assignment: G: Gate D: Drain S: Source

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
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■ MARKING

PACKAGE	MARKING
SOT-223	 <p>UT6354 □ L: Lead Free            □ □ □ □ □ G: Halogen Free            Lot Code ← □ □ □ □ □ → Date Code            1</p>
SOT-23	 <p>□            354H □ L: Lead Free            □ □ □ G: Halogen Free</p>
SOT-26	 <p>6 5 4            □ □ □            354H □ L: Lead Free            □ □ □ G: Halogen Free            1 2 3</p>



### ■ ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	-60	V
Gate-Source Voltage		$V_{GSS}$	$\pm 20$	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	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

- 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.  $L = 0.1\text{mH}$ ,  $I_{AS} = -18.3\text{A}$ ,  $V_{DD} = -50\text{V}$ ,  $R_G = 25\ \Omega$  Starting  $T_J = 25^\circ\text{C}$ .

### ■ THERMAL DATA

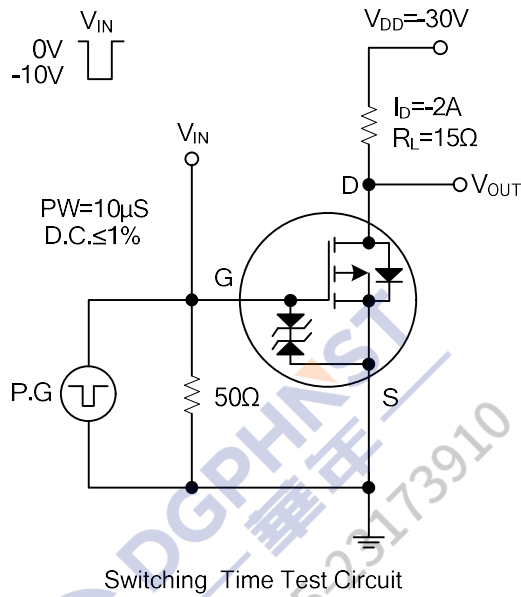
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	$\theta_{JA}$	83	$^\circ\text{C/W}$
	SOT-23/ SOT-26		125	$^\circ\text{C/W}$

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

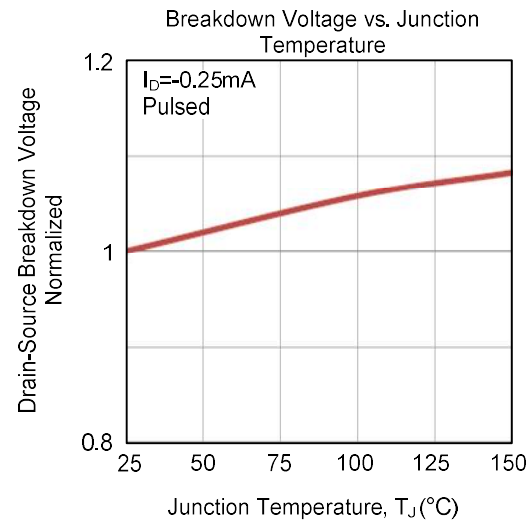
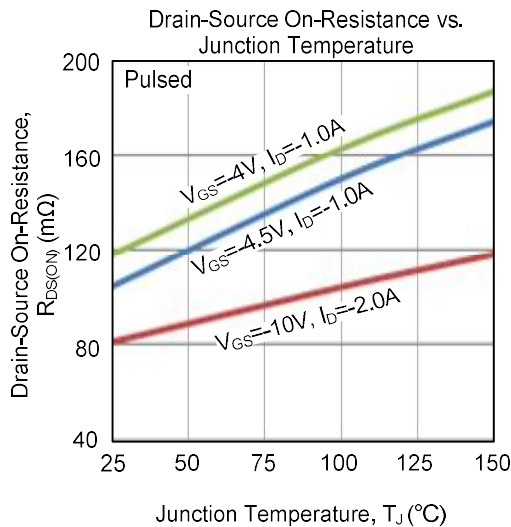
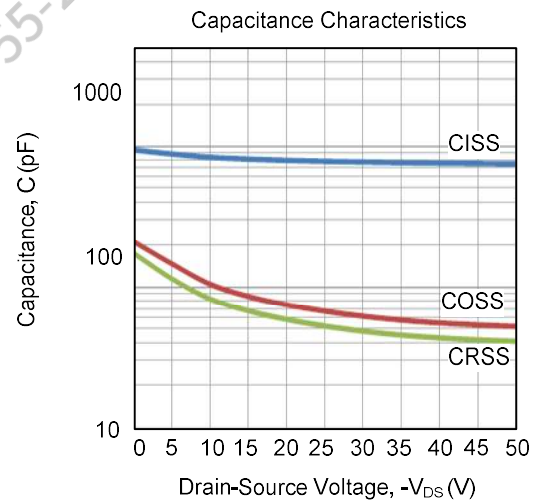
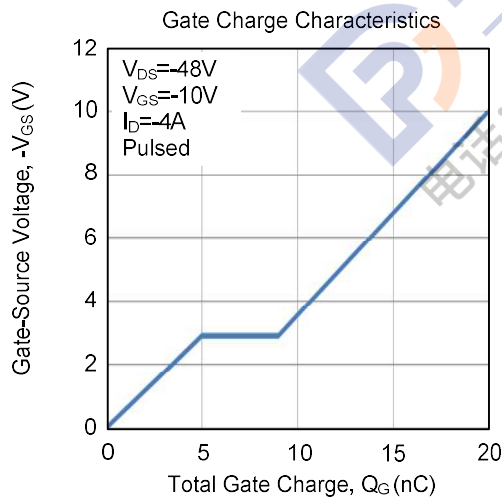
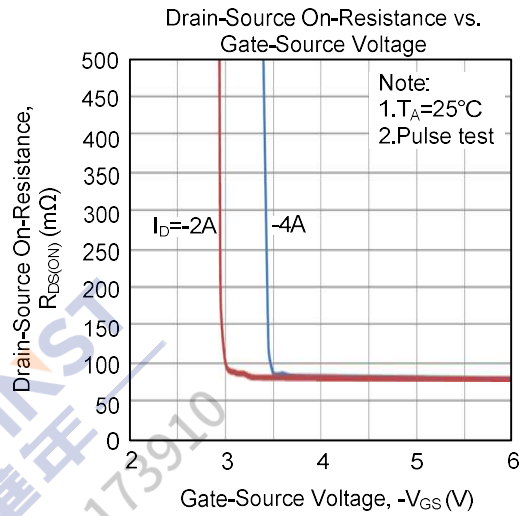
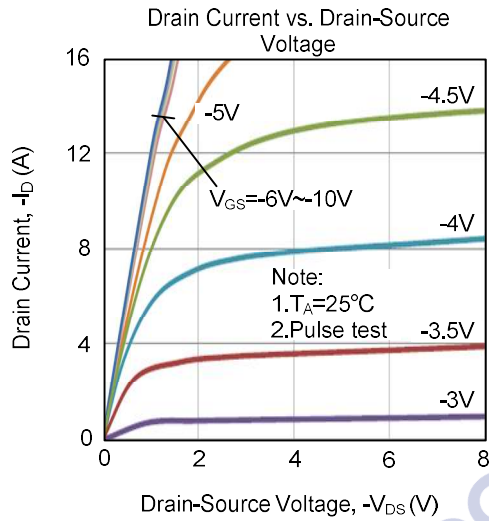
### ■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0\text{V}$	-60			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -60\text{V}$ , $V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
<b>ON CHARACTERISTICS</b>						
Cutoff Voltage	$V_{GS(OFF)}$	$V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$	-1.0		-2.6	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = -10\text{V}$ , $I_D = -2.0\text{A}$		77	100	$\text{m}\Omega$
		$V_{GS} = -4.5\text{V}$ , $I_D = -1.0\text{A}$		96	135	$\text{m}\Omega$
		$V_{GS} = -4.0\text{V}$ , $I_D = -1.0\text{A}$		103	145	$\text{m}\Omega$
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS} = -20\text{V}$ , $f = 1.0\text{MHz}$		800		pF
Output Capacitance	$C_{OSS}$			75		pF
Reverse Transfer Capacitance	$C_{RSS}$			58		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	$Q_G$	$V_{DS} = -48\text{V}$ , $V_{GS} = -10\text{V}$ , $I_D = -4\text{A}$ $I_G = -1\text{mA}$		20		nC
Gate to Source Charge	$Q_{GS}$			5		nC
Gate to Drain Charge	$Q_{GD}$			4		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DS} = -30\text{V}$ , $V_{GS} = -10\text{V}$ , $I_D = -4\text{A}$ $R_G = 3\Omega$		6		ns
Rise Time	$t_R$			16		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			26		ns
Fall-Time	$t_F$			18		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Diode Forward Voltage	$V_{SD}$	$I_S = -4\text{A}$ , $V_{GS} = 0\text{V}$		-0.84	-1.2	V

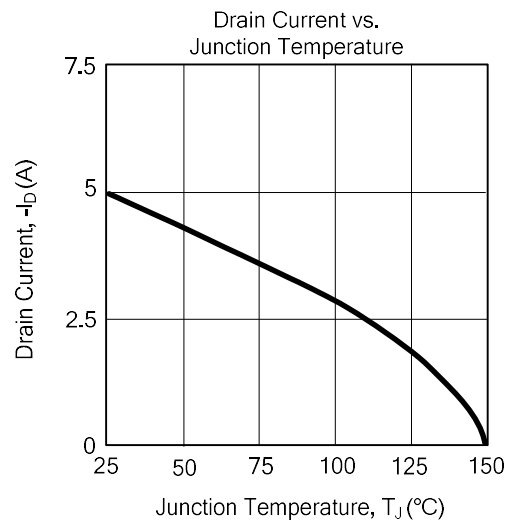
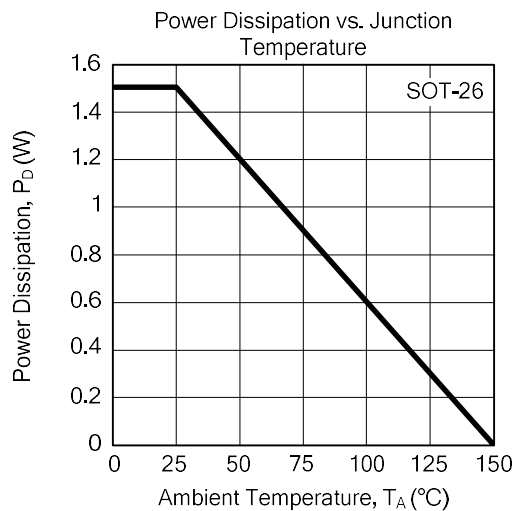
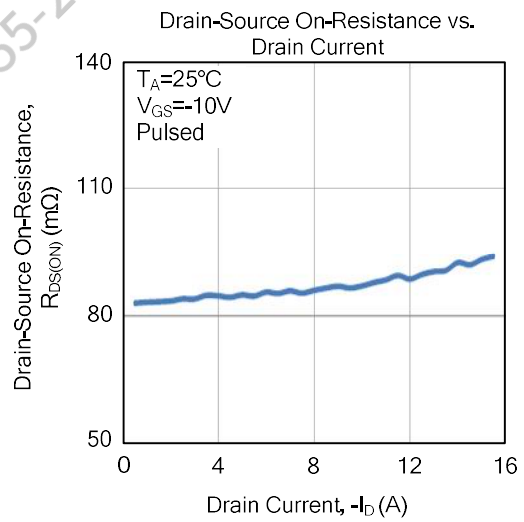
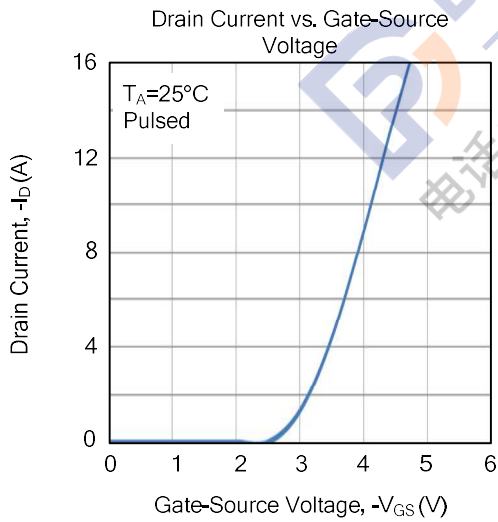
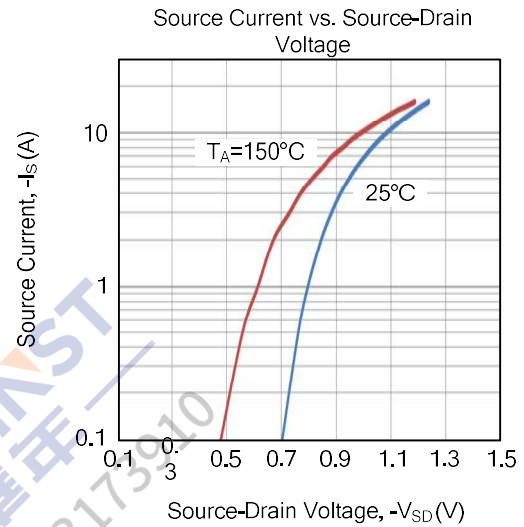
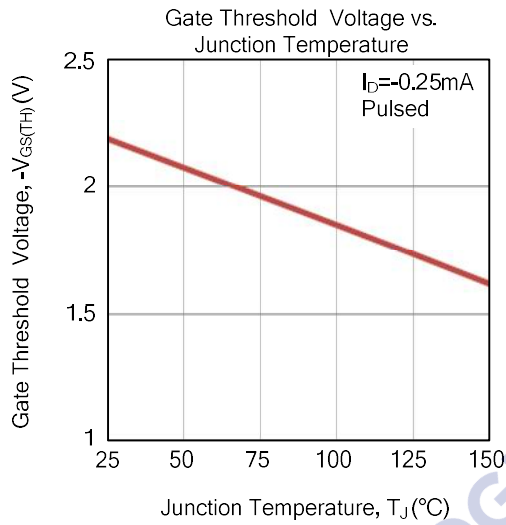
## ■ TEST CIRCUITS AND WAVEFORMS



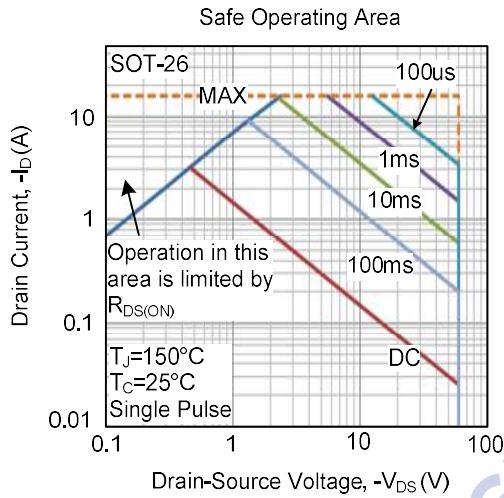
## TYPICAL CHARACTERISTICS



## TYPICAL CHARACTERISTICS (Cont.)



## ■ TYPICAL CHARACTERISTICS (Cont.)



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