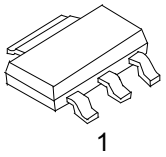
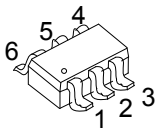
# UT6354-H

**Power MOSFET**

## -4A, -60V P-CHANNEL SILICON MOSFET




SOT-223




SOT-26

### ■ DESCRIPTION

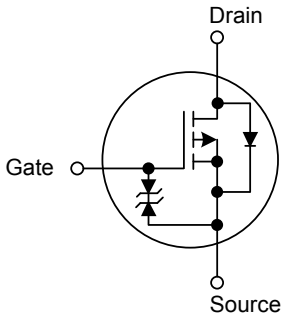
The UTC **UT6354-H** is a P-Channel Silicon MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and low gate charge, etc.

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

### ■ FEATURES

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

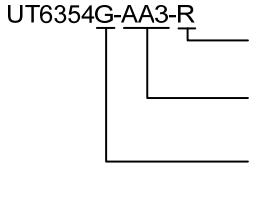
### ■ SYMBOL




### ■ 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-AG6-R | UT6354G-AG6-R | SOT-26 | D | D | G | S | D | D | Tape Reel |

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

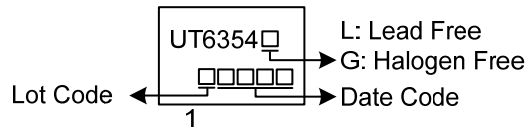
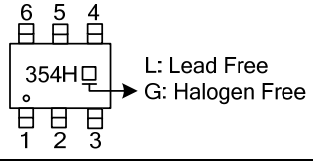



(1) R: Tape Reel

(2) AA3: SOT-223, AG6: SOT-26

(3) G: Halogen Free and Lead Free, L: Lead Free

### ■ MARKING

| SOT-223 | SOT-26 |
|---|---|
|  |  |

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

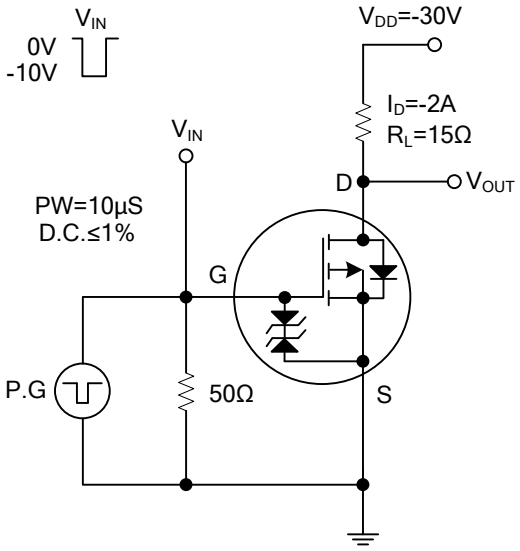
| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | -60 | V |
| Gate-Source Voltage | | $V_{GSS}$ | ±20 | V |
| Drain Current (DC) | | $I_D$ | -4 | A |
| Drain Current (Pulse) | $P_W$≤10μs<br>Duty Cycle≤1% | $I_{DP}$ | -16 | A |
| Allowable Power Dissipation (When Mounted on Ceramic Substrate ($1500mm^2$×0.8mm)) | SOT-223 | $P_D$ | 2.3 | W |
| | SOT-26 | | 1.6 | W |
| Junction Temperature | | $T_J$ | +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.

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

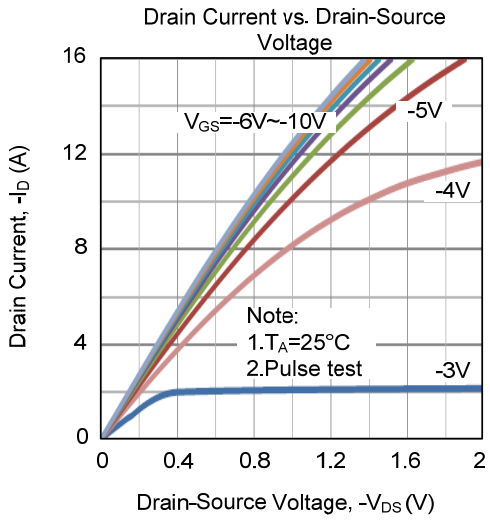
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $I_D$=-1mA, $V_{GS}$=0V | -60 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-60V, $V_{GS}$=0V | | | -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 | -1.2 | | -2.6 | V |
| Static Drain-Source On-State Resistance | $R_{DS(ON)}$ | $V_{GS}$=-10V, $I_D$=-2A | | 77 | 100 | mΩ |
| | | $V_{GS}$=-4.5V, $I_D$=-1A | | 96 | 135 | mΩ |
| | | $V_{GS}$=-4V, $I_D$=-1A | | 103 | 145 | mΩ |
| **DYNAMIC PARAMETERS** | | | | | | |
| Input Capacitance | $C_{ISS}$ | $V_{DS}$=-20V, f=1.0MHz | | 950 | | pF |
| Output Capacitance | $C_{OSS}$ | | | 60 | | pF |
| Reverse Transfer Capacitance | $C_{RSS}$ | | | 40 | | pF |
| **SWITCHING PARAMETERS** | | | | | | |
| Total Gate Charge | $Q_G$ | $V_{DS}$=-48V, $V_{GS}$=-10V, $I_D$=-4A<br>$I_G$=-1mA | | 18 | | nC |
| Gate to Source Charge | $Q_{GS}$ | | | 3 | | nC |
| Gate to Drain Charge | $Q_{GD}$ | | | 2 | | nC |
| Turn-ON Delay Time | $t_{D(ON)}$ | $V_{DS}$=-30V, $V_{GS}$=-10V, $I_D$=-4A<br>$R_G$=25Ω | | 15 | | ns |
| Rise Time | $t_R$ | | | 17 | | ns |
| Turn-OFF Delay Time | $t_{D(OFF)}$ | | | 93 | | ns |
| Fall-Time | $t_F$ | | | 50 | | ns |
| **SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS** | | | | | | |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=-4A,$V_{GS}$=0V | | -0.84 | -1.2 | V |

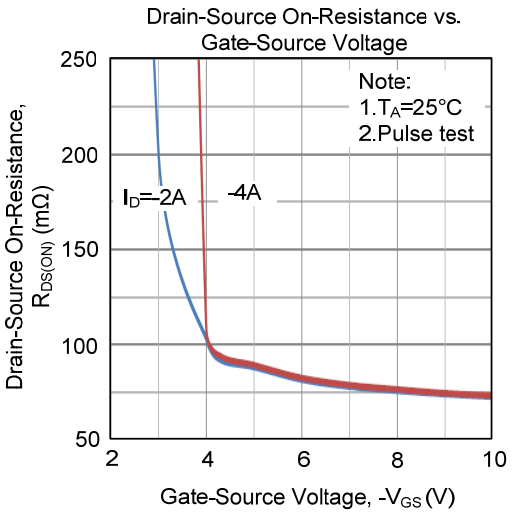
## ■ TEST CIRCUITS AND WAVEFORMS

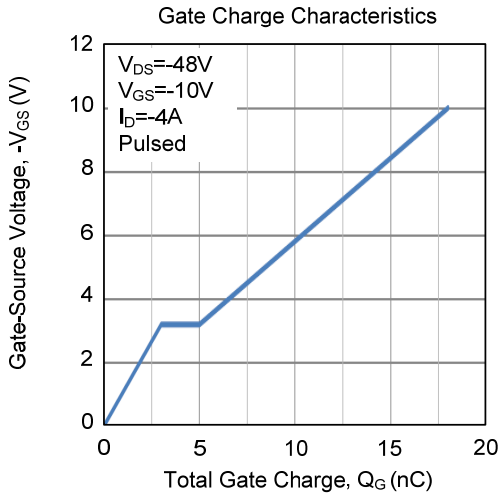


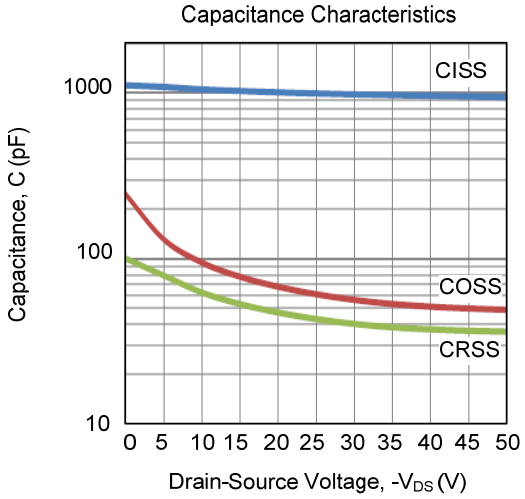

Switching Time Test Circuit

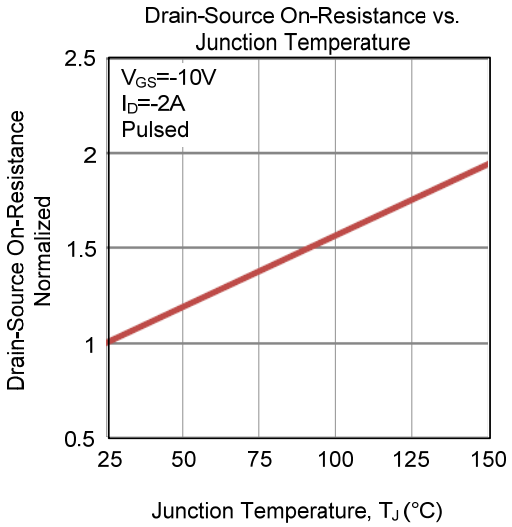
## ■ TYPICAL CHARACTERISTICS

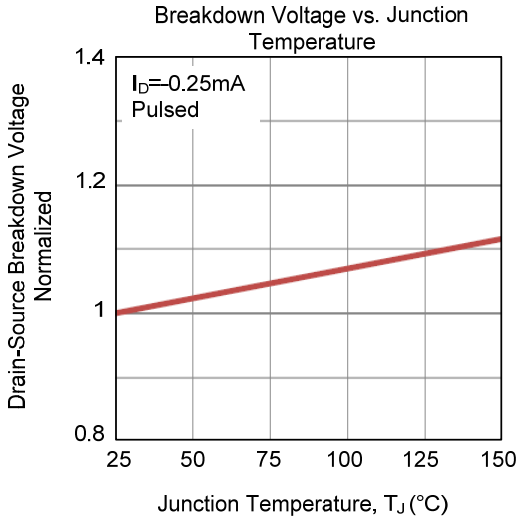


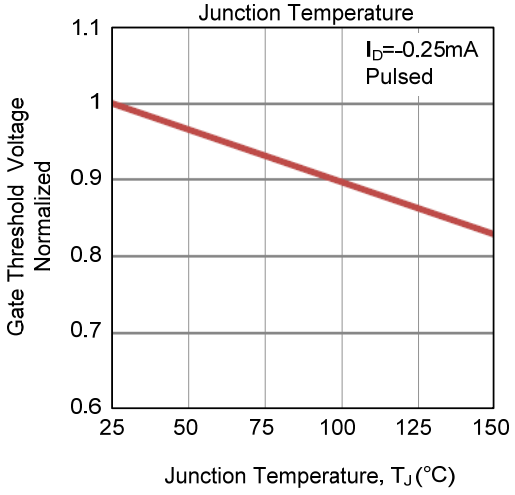



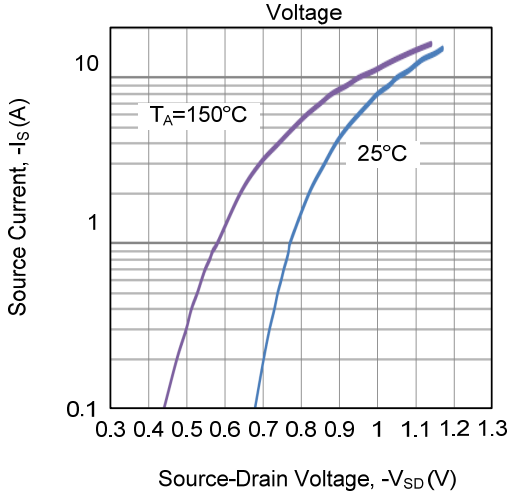



## ■ TYPICAL CHARACTERISTICS (Cont.)

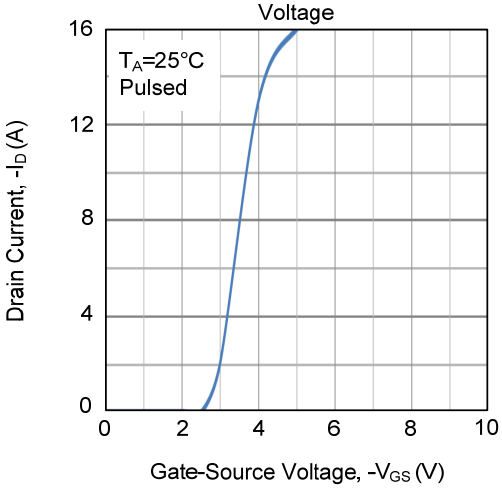
Gate Threshold Voltage vs. Junction Temperature



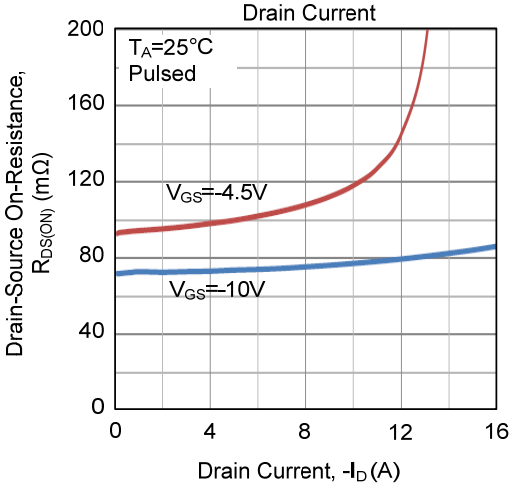

Source Current vs. Source-Drain Voltage



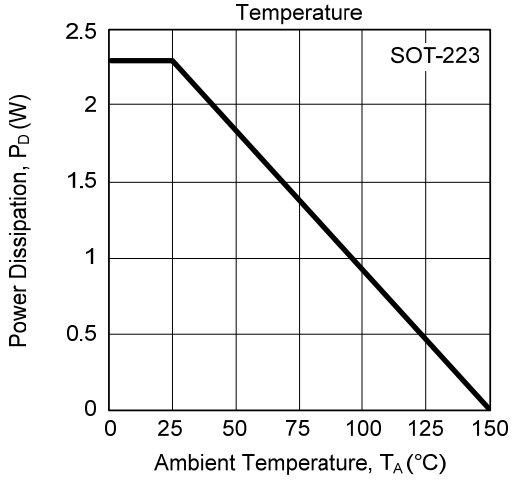

Drain Current vs. Gate-Source Voltage



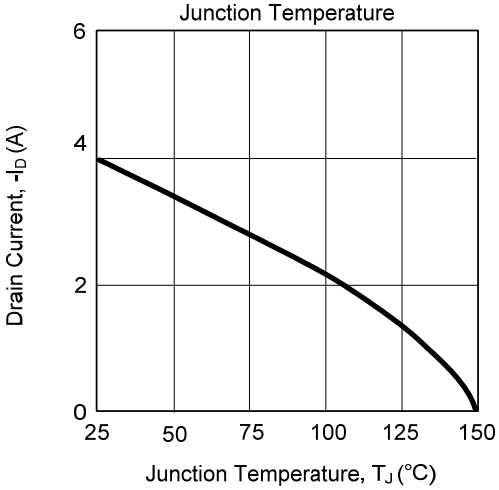

Drain-Source On-Resistance vs. Drain Current




Power Dissipation vs. Junction Temperature




Drain Current vs. Junction Temperature



## ■ TYPICAL CHARACTERISTICS (Cont.)