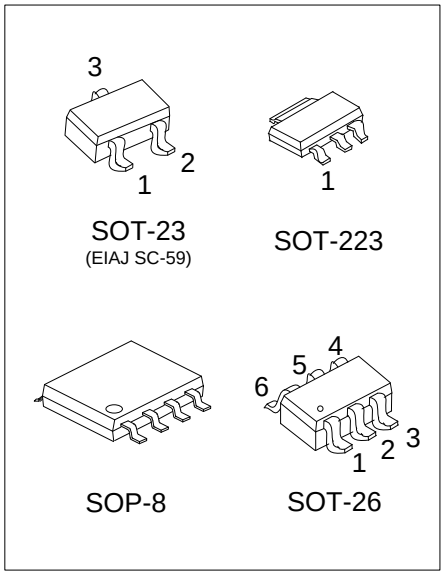
UT9435H

Power MOSFET

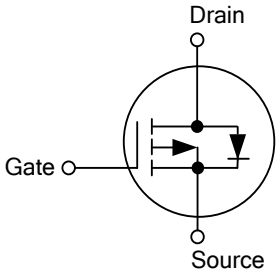
P-CHANNEL ENHANCEMENT MODE



■ DESCRIPTION

The UTC **UT9435H** provide excellent $R_{DS(ON)}$, low gate charge and fast switching speed. It has been optimized for power management applications.

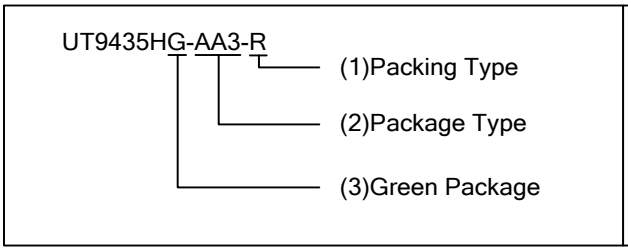
■ SYMBOL



■ ORDERING INFORMATION

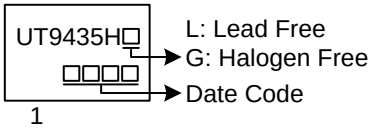
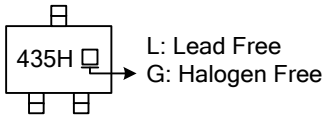
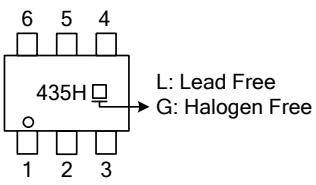
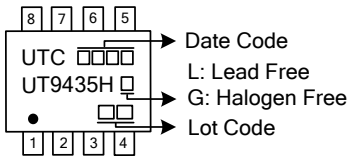
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT9435HL-AA3-R	UT9435HG-AA3-R	SOT-223	G	D	S	-	-	-	-	-	Tape Reel
UT9435HL-AE3-R	UT9435HG-AE3-R	SOT-23	G	S	D	-	-	-	-	-	Tape Reel
UT9435HL-AL6-R	UT9435HG-AG6-R	SOT-26	D	D	G	S	D	D	-	-	Tape Reel
UT9435HL-S08-R	UT9435HG-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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



(1) R: Tape Reel
(2) AA3: SOT-223, S08: SOP-8, AE3: SOT-23
AG6: SOT-26
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-223	SOT-23
	
SOT-26	SOP-8
	

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

PARAMETER		SYMBOL	RATING	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current (Note 3)	T_A=125°C	I_D	-5.3	A
Pulsed Drain Current (Note 1, 2)		I_{DM}	-20	A
Power Dissipation	SOT-223 SOP-8	P_D	2.5	W
	SOT-23 SOT-26		0.38	
Junction Temperature		T_J	+150	°C
Storage Temperature		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 DATA

PARAMETER		SYMBOL	RATING	UNIT
Junction to Ambient	SOT-223 SOP-8	θ_{JA}	50	°C/W
	SOT-23 SOT-26		325	

Note: Surface mounted on 1 in^2 copper pad of FR4 board.

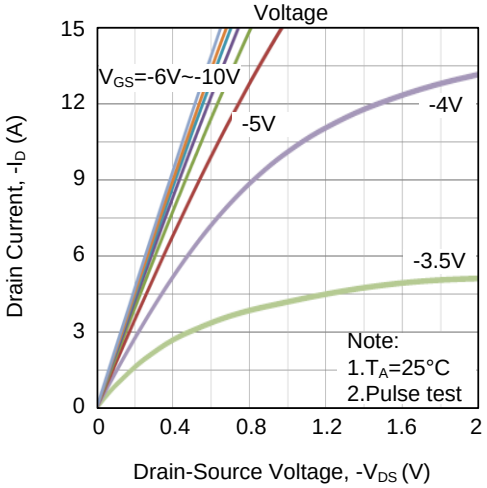
■ ELECTRICAL CHARACTERISTICS (T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-24V, V_{GS}=0V			-1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250μA	-1		-3	V
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-5.3A			50	mΩ
		V_{GS}=-4.5V, I_D=-4.2A			90	mΩ
On State Drain Current	$I_{D(ON)}$	V_{DS}=-5V, V_{GS}=-10V	-20			A
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=-15V, V_{GS}=0V, f=1.0MHz		880		pF
Output Capacitance	C_{OSS}			160		pF
Reverse Transfer Capacitance	C_{RSS}			135		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note 2)	Q_G	V_{DS}=-15V, V_{GS}=-10V, I_D=-4.6A		22		nC
Gate-Source Charge	Q_{GS}			2		nC
Gate-Drain Charge	Q_{GD}			4		nC
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	V_{DD}=-15V, I_D=-1A, V_{GEN}=-10V, R_G=6Ω		3		ns
Turn-ON Rise Time	t_R			16		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			27		ns
Turn-OFF Fall Time	t_F			20		ns
DRAIN-SOURCE DIODE CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note 2)	V_{SD}	V_{GS} =0V, I_S =-5.3A			-1.3	V

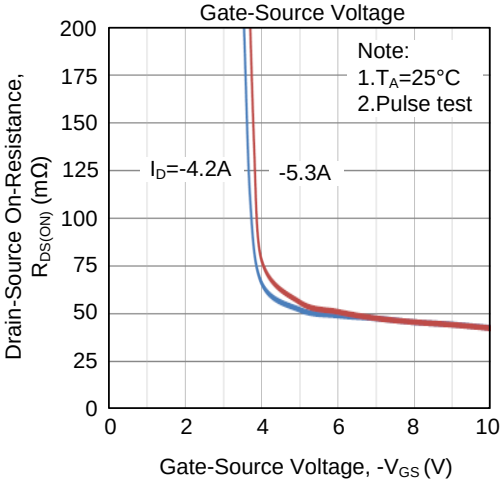
Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse width ≤ 300us, duty cycle ≤ 2%.

■ TYPICAL CHARACTERISTICS

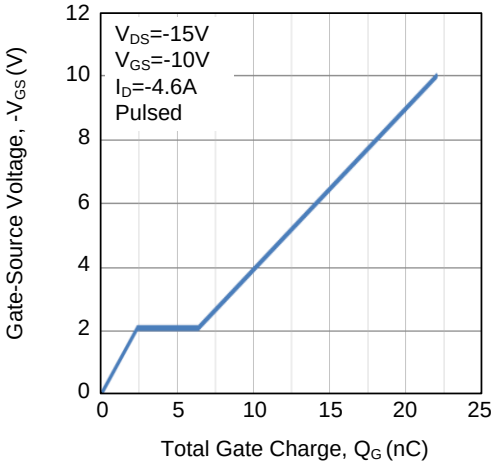
Drain Current vs. Drain-Source Voltage



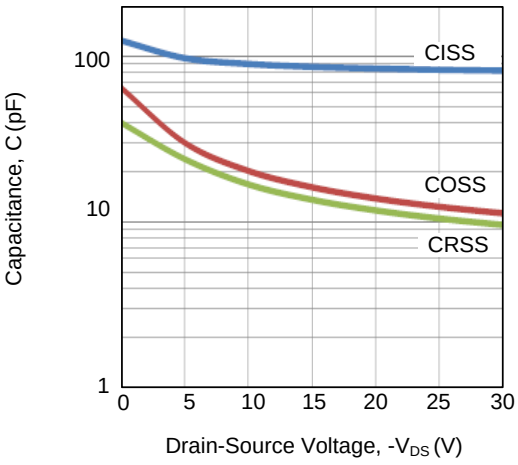
Drain-Source On-Resistance vs. Gate-Source Voltage



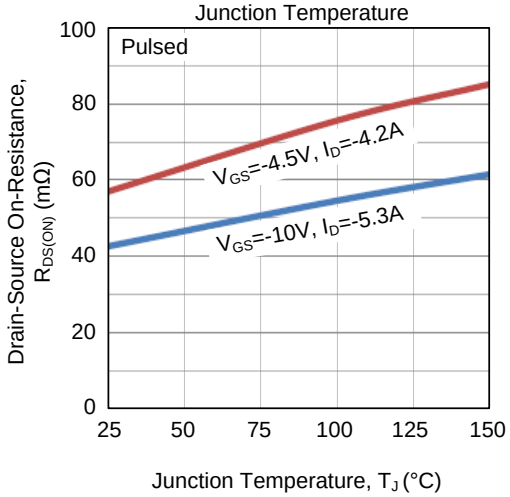
Gate Charge Characteristics



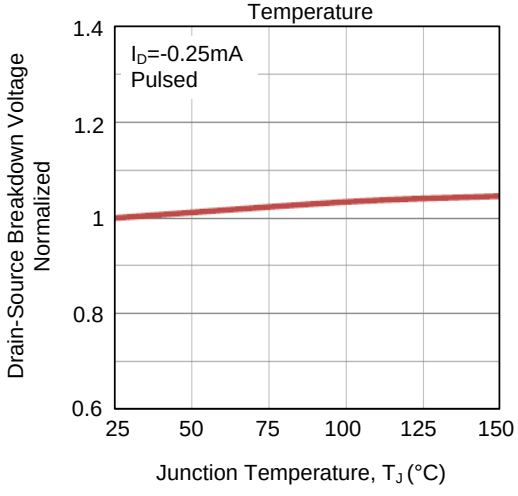
Capacitance Characteristics



Drain-Source On-Resistance vs. Junction Temperature

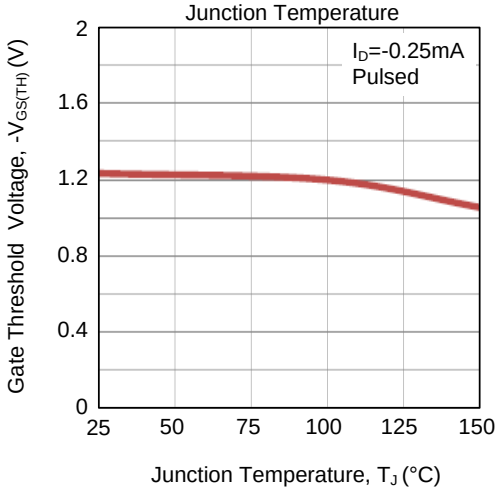


Breakdown Voltage vs. Junction Temperature

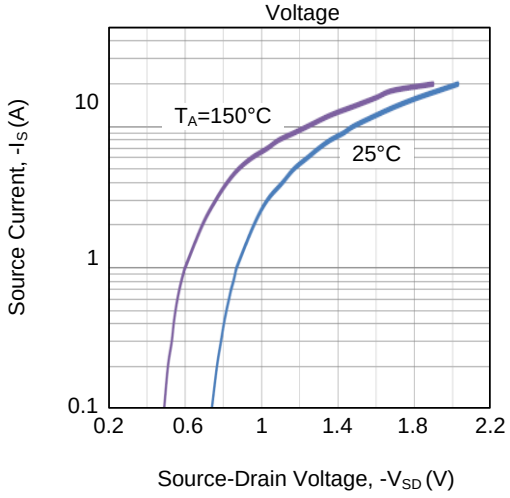


■ TYPICAL CHARACTERISTICS (Cont.)

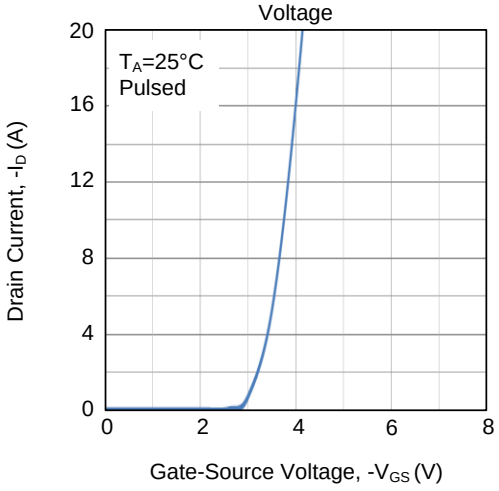
Gate Threshold Voltage vs. Junction Temperature



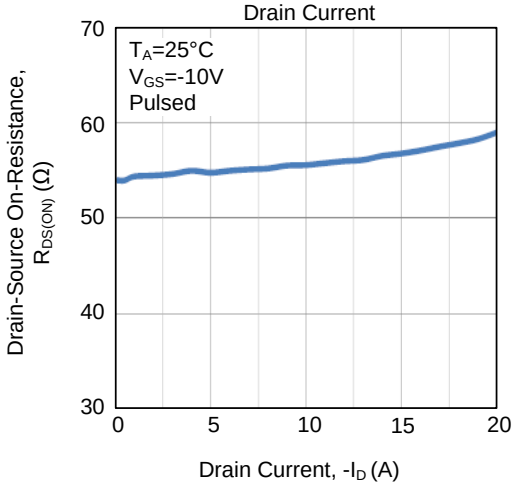
Source Current vs. Source-Drain Voltage



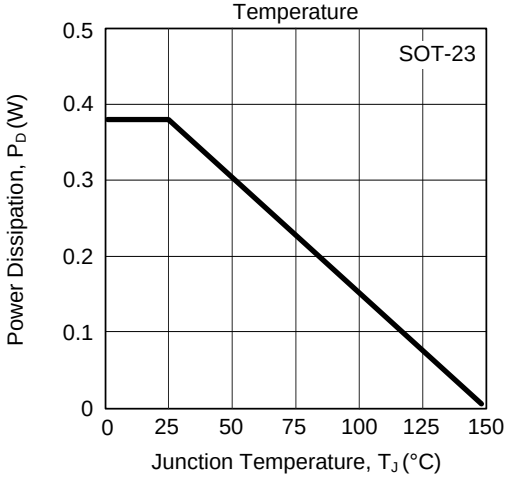
Drain Current vs. Gate-Source Voltage



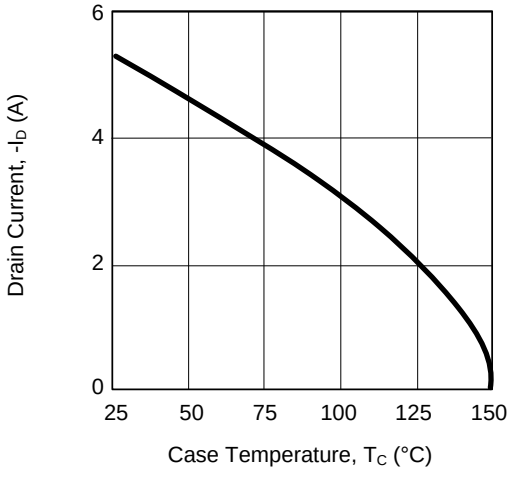
Drain-Source On-Resistance vs. Drain Current



Power Dissipation vs. Junction Temperature



Drain Current vs. Case Temperature



■ TYPICAL CHARACTERISTICS (Cont.)