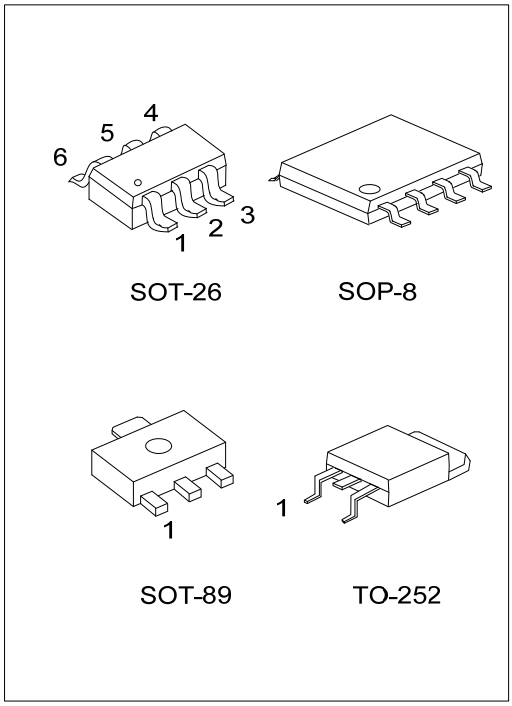
UT9435

Power MOSFET

P-CHANNEL ENHANCEMENT MODE

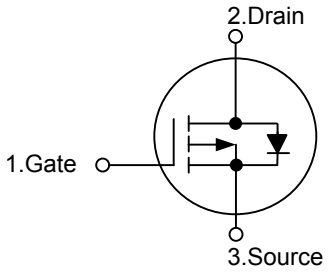


■ DESCRIPTION

The **UT9435** is P-Channel Power MOSFET, designed with high density cell with fast switching speed, ultra low on-resistance, and excellent thermal and electrical capabilities.

Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

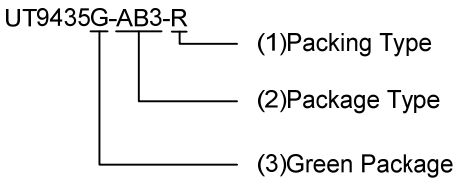
■ SYMBOL



■ ORDERING INFORMATION

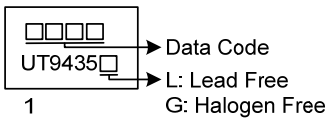
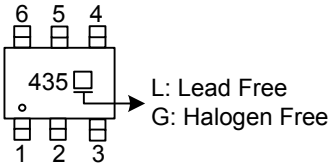
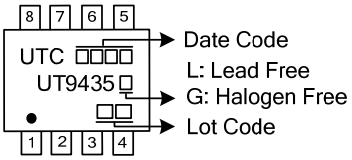
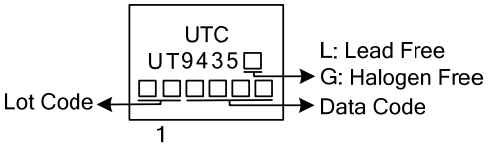
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT9435L-AB3-R	UT9435G-AB3-R	SOT-89	G	D	S	-	-	-	-	-	Tape Reel
UT9435L-AG6-R	UT9435G-AG6-R	SOT-26	D	D	G	S	D	D	-	-	Tape Reel
UT9435L-TN3-R	UT9435G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UT9435L-S08-R	UT9435G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

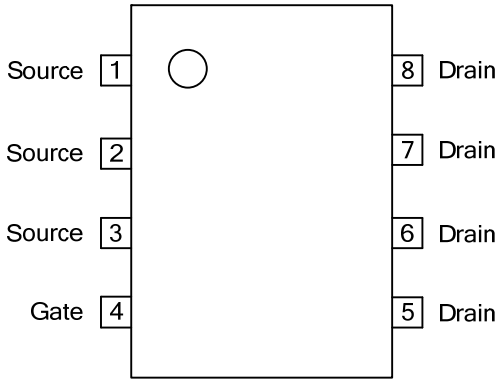


(1) R: Tape Reel
(2) AB3: SOT-89, AG6: SOT-26, TN3: TO-252, SO8: SOP-8
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

PACKAGE	MARKING
SOT-89	
SOT-26	
SOP-8	
TO-252	

■ PIN CONFIGURATION (For SOP-8)



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current		I_D	-4.2	A
Pulsed Drain Current (Note 1, 2)		I_{DM}	-20	A
Power Dissipation (T_A=25°C)	SOT-89	P_D	0.69	W
	SOT-26		0.5	
	SOP-8		2.5	
Power Dissipation (T_C=25°C)	TO-252	P_D	12.5	W
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	RATINGS	UNIT
Junction to Ambient	SOT-89	θ_{JA}	180	°C/W
	SOT-26		245	
	TO-252		110	
	SOP-8		50	

Note: Surface mounted on 1 in ^{2} copper pad of FR4 board, t ≤10s.

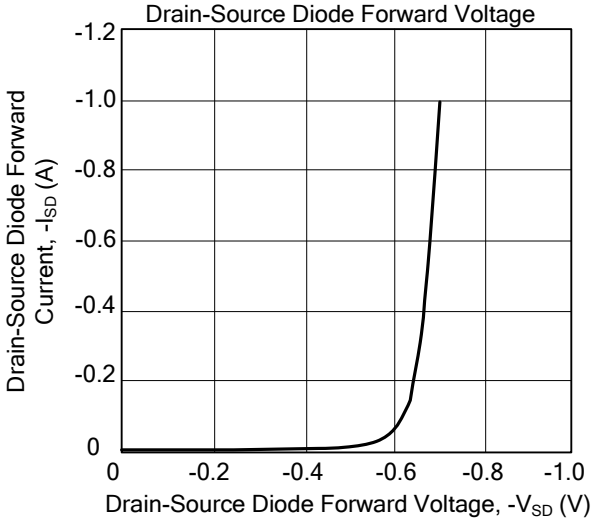
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0 V, I_D =-250 uA	-30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}= ±20V			±100	nA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	Reference to 25℃, I_D=-1mA		-0.1		V/℃
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250uA	-1		-3	V
Static Drain-Source On-Resistance (Note 2)	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-4A			50	mΩ
		V_{GS}=-4.5V, I_D=-2A			90	mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	V_{GS}=0V,V_{DS}=-25V,f=1.0MHz		520	830	pF
Output Capacitance	C_{OSS}			180		pF
Reverse Transfer Capacitance	C_{RSS}			130		pF
SWITCHING CHARACTERISTICS						
Total Gate Charge (Note 2)	Q_G	V_{DS}=-25V, V_{GS}=-4.5V, I_D=-4A		10	16	nC
Gate-Source Charge	Q_{GS}			2		nC
Gate-Drain Charge	Q_{GD}			6		nC
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	V_{DS}=-15V,I_D=-1A, R_G=3.3Ω, V_{GS}=-10V,R_D=15Ω		10	48	ns
Turn-ON Rise Time	t_R			7	40	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			26	292	ns
Turn-OFF Fall Time	t_F			14	112	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	I_S=-1A, V_{GS}=0V			-1.3	V
Reverse Recovery Time	t_{rr}	I_S=-4A, V_{GS}=0V, dI/dt=-100A/μs		30		ns
Reverse Recovery Charge	Q_{rr}			24		nC

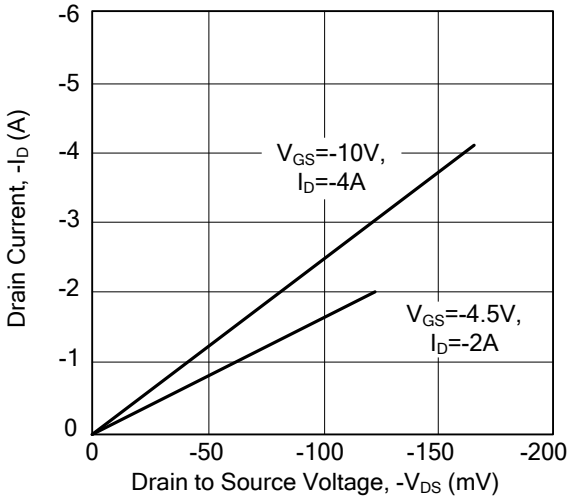
Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse width ≤300μs , duty cycle ≤2%.

■ TYPICAL CHARACTERISTICS

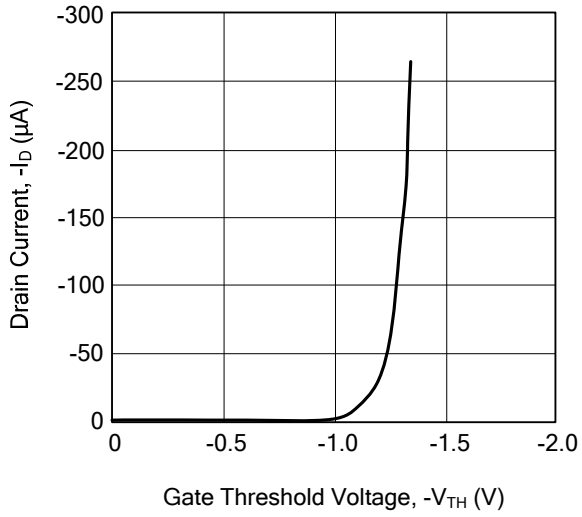
Drain-Source Diode Forward Current vs. Drain-Source Diode Forward Voltage



Drain-Source On-State Resistance Characteristics



Drain Current vs. Gate Threshold Voltage



Drain Current vs. Drain-Source Breakdown Voltage