

**UT9435****Power MOSFET**

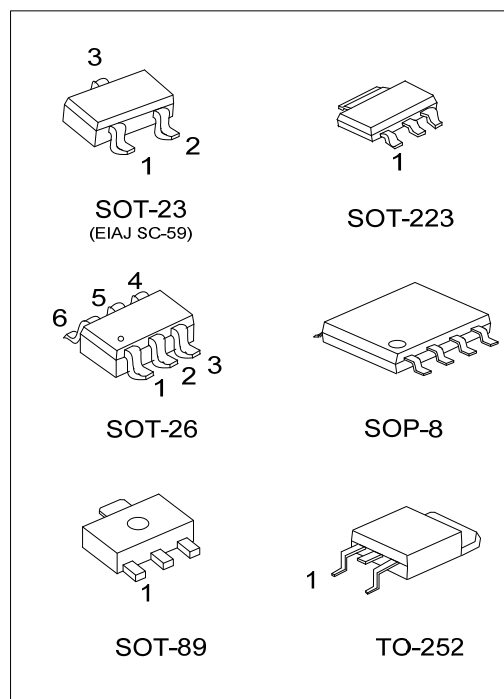
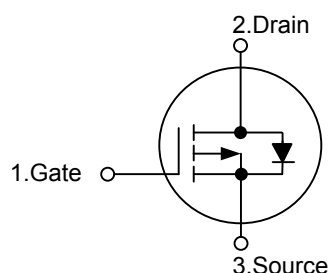
P-CHANNEL ENHANCEMENT MODE POWER MOSFET

DESCRIPTION

The **UT9435** is P-channel enhancement mode 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



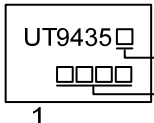
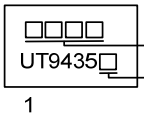
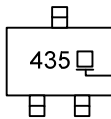
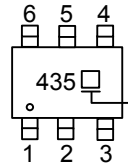
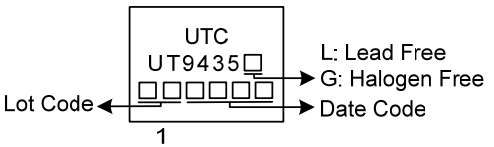
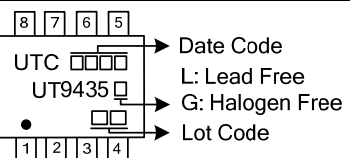
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT9435L-AA3-R	UT9435G-AA3-R	SOT-223	G	D	S	-	-	-	-	-	Tape Reel
UT9435L-AE3-R	UT9435G-AE3-R	SOT-23	G	S	D	-	-	-	-	-	Tape Reel
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

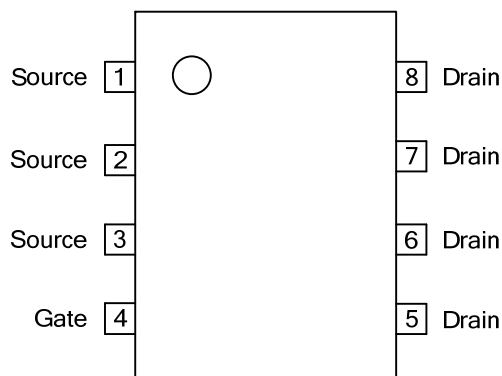
Note: Pin Assignment: G: Gate D: Drain S: Source

UT9435G-AA3-R 		(1) R: Tape Reel (2) AA3: SOT-223, AB3: SOT-89, AE3: SOT-23 AG6: SOT-26, TN3: TO-252, S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

SOT-223	SOT-89
 UT9435 L: Lead Free G: Halogen Free Date Code 1	 □□□□ UT9435 Date Code L: Lead Free G: Halogen Free 1
SOT-23	SOT-26
 435 L: Lead Free G: Halogen Free 1	 435 L: Lead Free G: Halogen Free 1 2 3 4 5 6
TO-252	SOP-8
 UTC UT9435 Lot Code L: Lead Free G: Halogen Free Date Code 1	 □□□□ UTC UT9435 Date Code L: Lead Free G: Halogen Free Lot Code 1 2 3 4 5 6 7 8

PIN CONFIGURATION (For SOP-8)



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current		I_D	-4.2	A
Pulsed Drain Current (Note 1, 2)		I_{DM}	-20	A
Power Dissipation ($T_A=25^{\circ}\text{C}$)	SOT-223	P_D	1	W
	SOT-89		0.69	W
	SOT-23		0.38	W
	SOT-26		0.5	W
	SOP-8		2.5	W
Power Dissipation ($T_C=25^{\circ}\text{C}$)	TO-252	P_D	12.5	W
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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-223	θ_{JA}	125	$^{\circ}\text{C/W}$
	SOT-89		180	$^{\circ}\text{C/W}$
	SOT-23		325	$^{\circ}\text{C/W}$
	SOT-26		245	$^{\circ}\text{C/W}$
	TO-252		110	$^{\circ}\text{C/W}$
	SOP-8		50	$^{\circ}\text{C/W}$

Note: Surface mounted on 1 in² copper pad of FR4 board, $t \leq 10\text{s}$.

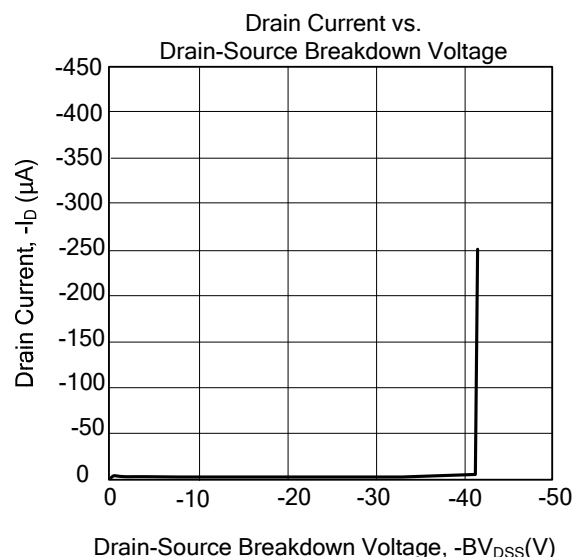
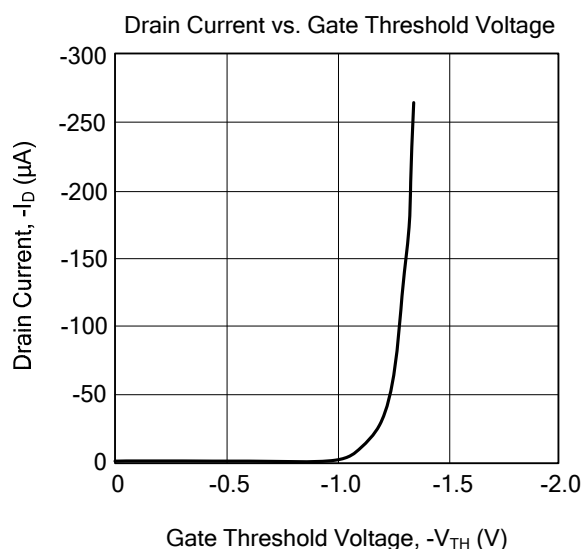
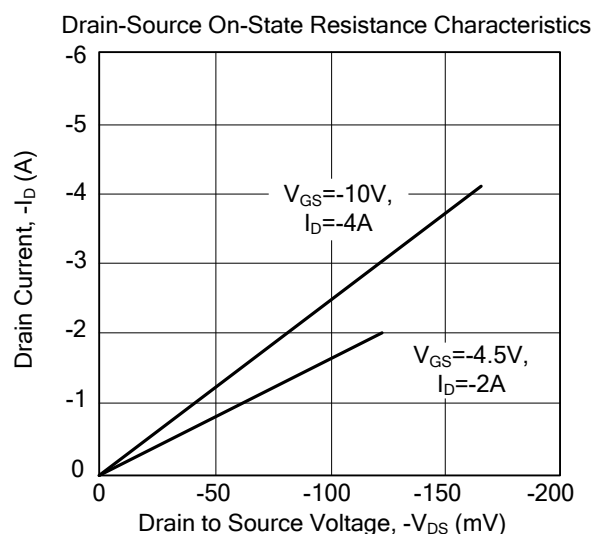
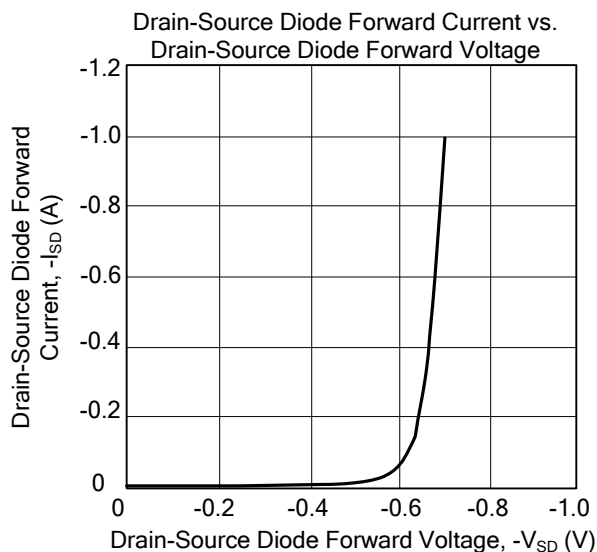
■ **ELECTRICAL CHARACTERISTICS** ($T_J = 25^\circ\text{C}$, unless otherwise specified)

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	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =-1mA		-0.1		V/°C
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250uA	-1.0		-3.0	V
Static Drain-Source On-Resistance (Note 2)	R _{DS(ON)}	V _{GS} =-10V, I _D =-4.0A			50	mΩ
		V _{GS} =-4.5V, I _D =-2.0A			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,		30		ns
Reverse Recovery Charge	Q _{rr}	dl/dt=-100A/μs		24		nC

Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



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