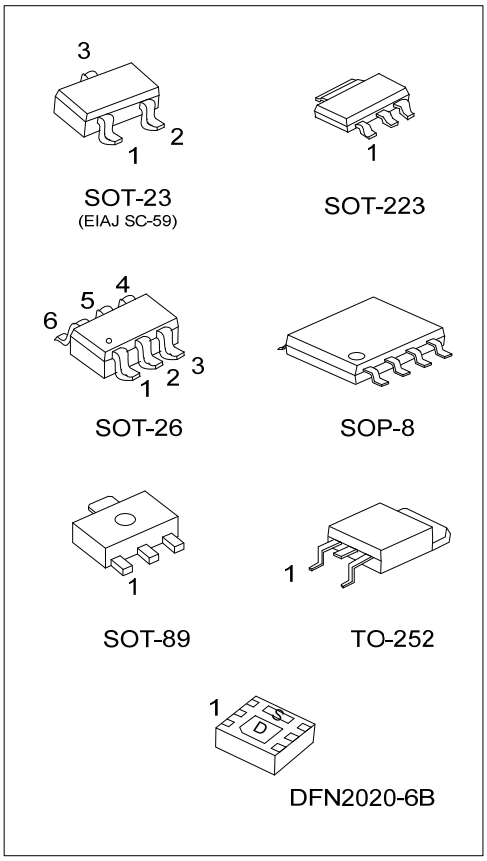
UT9435

Power MOSFET

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

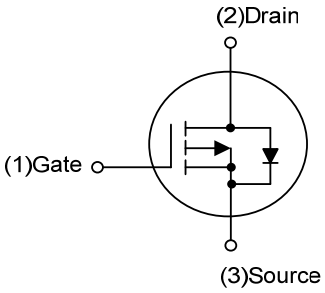


■ DESCRIPTION

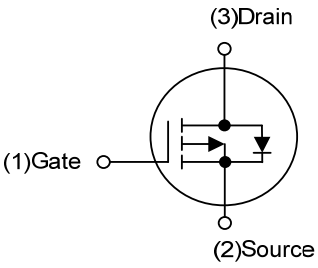
The **UT9435** is P-channel enhancement mode Power MOSFET, designed with high density cell with fast switching speed, ultra low on-resistance, and excellent thermal and electrical capabilities.

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

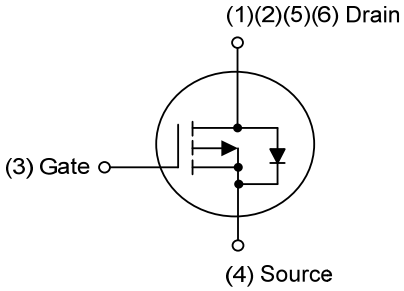
■ SYMBOL



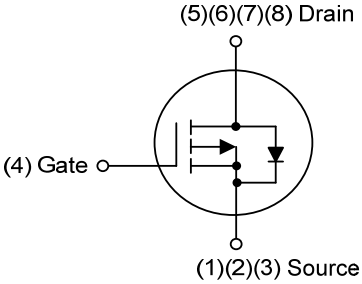
SOT-223/SOT-89/TO-252



SOT-23



SOT-26/DFN2020-6B

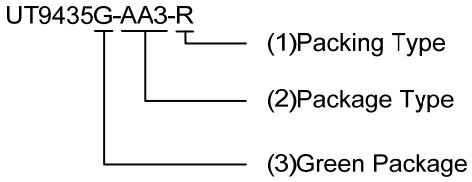


SOP-8

■ 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
UT9435L-K06B-2020-R	UT9435G-K06B-2020-R	DFN2020-6B	D	D	G	S	D	D	-	-	Tape Reel

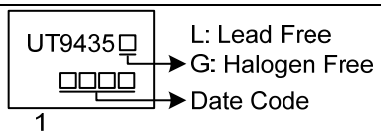
Note: Pin Assignment: G: Gate D: Drain S: Source



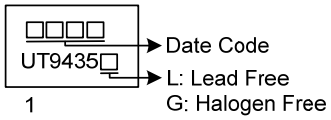
(1) R: Tape Reel
(2) AA3: SOT-223, AB3: SOT-89, AE3: SOT-23
AG6: SOT-26TN3: TO-252, S08: SOP-8
K06B-2020: DFN2020-6B
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

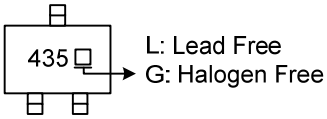
SOT-223



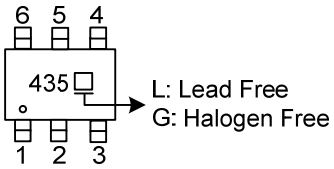
SOT-89



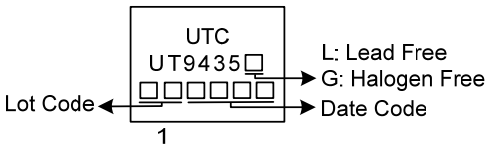
SOT-23



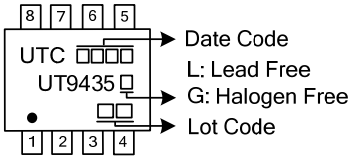
SOT-26



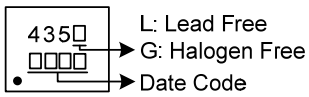
TO-252



SOP-8



DFN2020-6B



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■ 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	-5.3	A
Pulsed Drain Current (Note 1, 2)		I_{DM}	-20	A
Power Dissipation (T_A=25°C)	SOT-223	P_D	2	W
	SOT-89		1.4	W
	SOT-23 SOT-26		1.3	W
	SOP-8		1.5	W
	DFN2020-6B		2.3	W
Power Dissipation (T_C=25°C)	TO-252	P_D	48	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 (T_A=25°C)	SOT-223	θ_{JA}	62.5	°C/W
	SOT-89		89	°C/W
	SOT-23 SOT-26		96	°C/W
	TO-252		50	°C/W
	SOP-8		83	°C/W
	DFN2020-6B		54	°C/W
Case to Ambient (T_C=25°C)	TO-252	θ_{JC}	2.6	°C/W

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

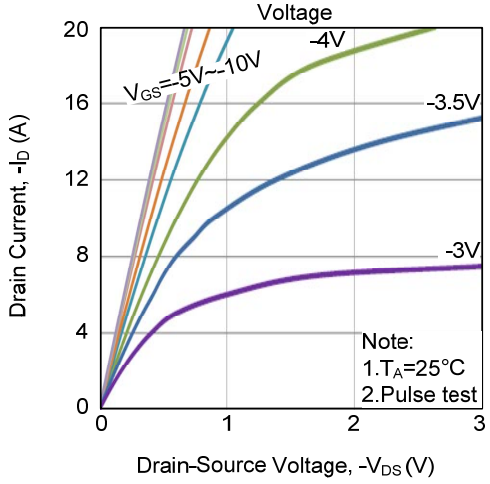
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

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
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		860		pF
Output Capacitance	C_{OSS}			128		pF
Reverse Transfer Capacitance	C_{RSS}			100		pF
SWITCHING CHARACTERISTICS						
Total Gate Charge (Note 2)	Q_G	V_{DS}=-24V, V_{GS}=-10V, I_D=-4.0A		22		nC
Gate-Source Charge	Q_{GS}			3.5		nC
Gate-Drain Charge	Q_{GD}			5		nC
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	V_{DS}=-15V, V_{GS}=-10V, I_D=-1.0A, R_G=3.3Ω		6		ns
Turn-ON Rise Time	t_R			17		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			40		ns
Turn-OFF Fall Time	t_F			29		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	I_S=-1.0A, V_{GS}=0V			-1.3	V

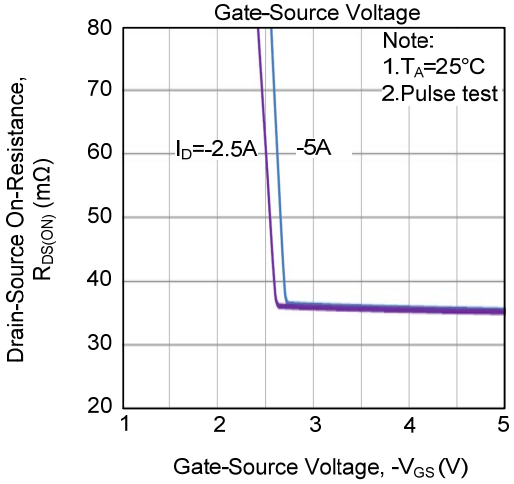
Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse width ≤300μs , duty cycle ≤2%.

■ TYPICAL CHARACTERISTICS

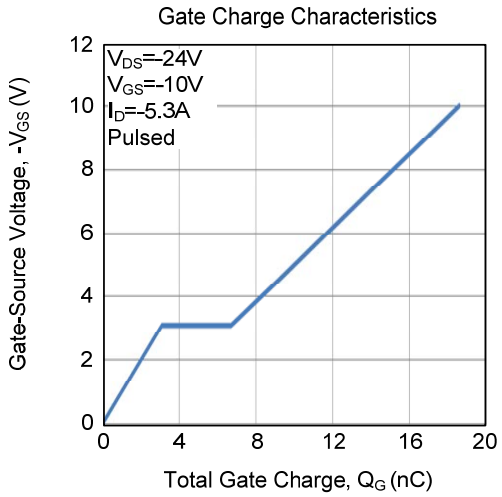
Drain Current vs. Drain-Source Voltage



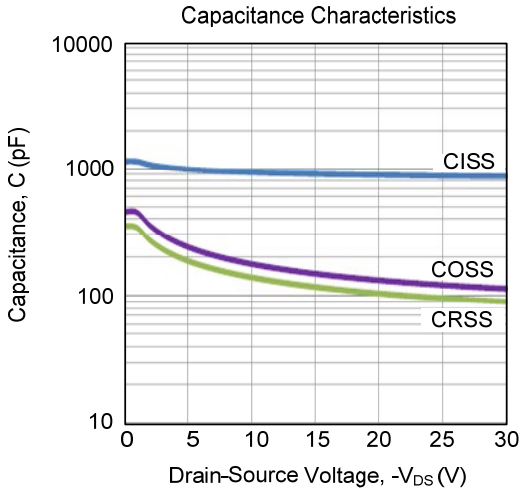
Drain-Source On-Resistance vs. Gate-Source Voltage



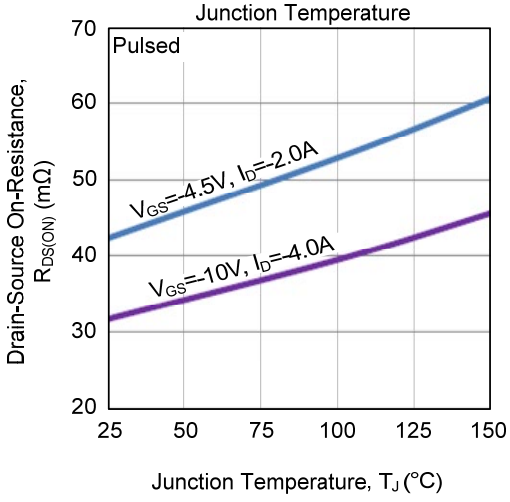
Gate Charge Characteristics



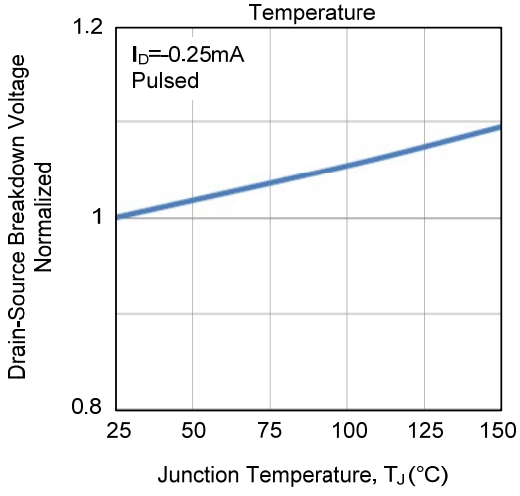
Capacitance Characteristics



Drain-Source On-Resistance vs. Junction Temperature

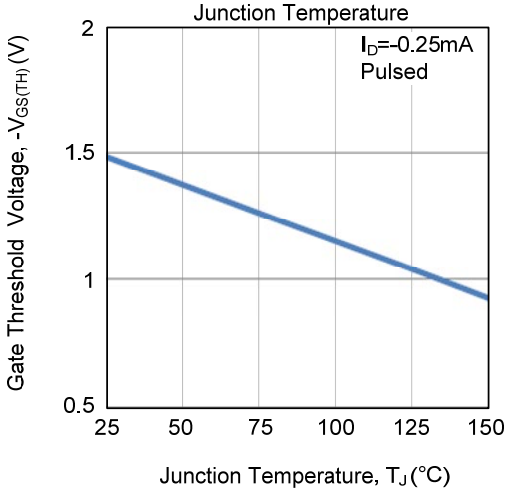


Breakdown Voltage vs. Junction Temperature

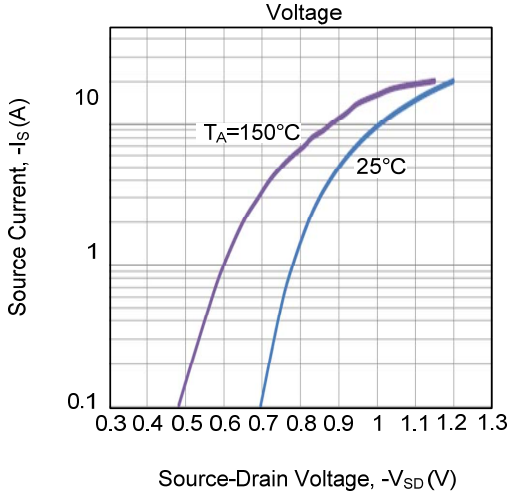


■ TYPICAL CHARACTERISTICS (Cont.)

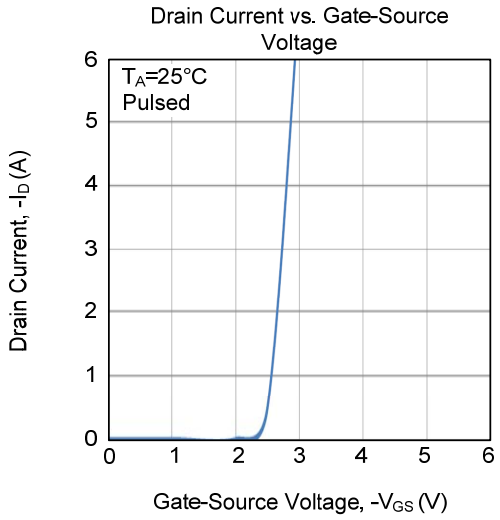
Gate Threshold Voltage vs. Junction Temperature



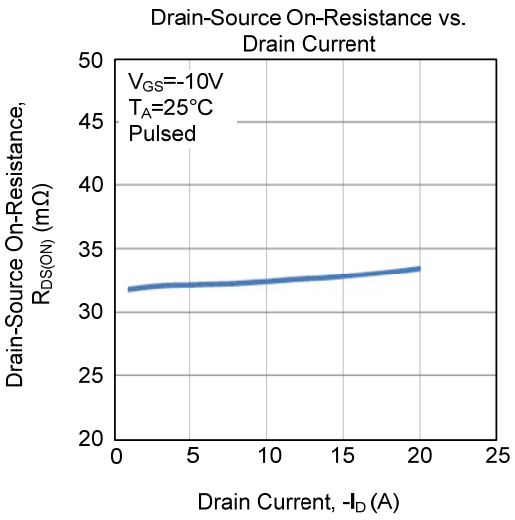
Source Current vs. Source-Drain Voltage



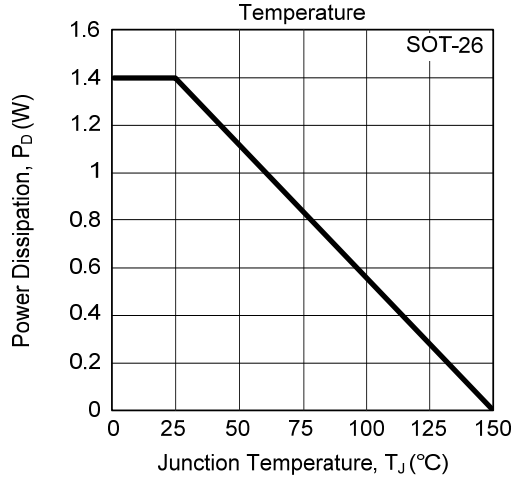
Drain Current vs. Gate-Source Voltage



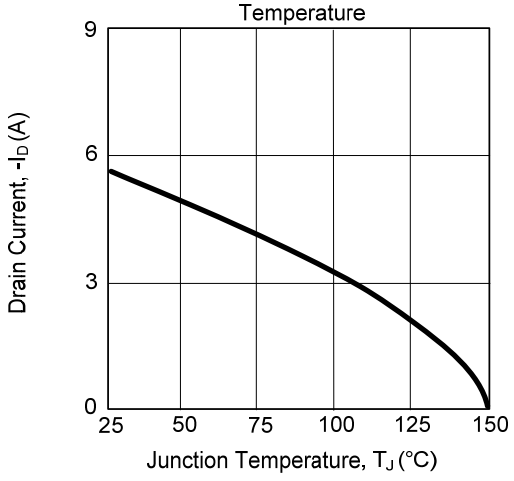
Drain-Source On-Resistance vs. Drain Current



Power Dissipation vs. Junction Temperature



Drain Current vs. Junction Temperature



■ TYPICAL CHARACTERISTICS (Cont.)