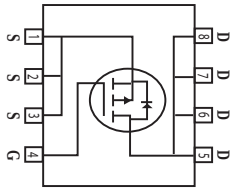
WEITRON

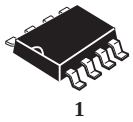
WTK4435

Surface Mount P-Channel Enhancement Mode MOSFET

Lead(Pb)-Free



DRAIN CURRENT
-8 AMPERES
DRAIN SOURCE VOLTAGE
-30 VOLTAGE



SOP-8

Features:

* Super high dense
* Cell design for low $R_{DS(ON)}$
* $R_{DS(ON)}$<20mΩ@V_{GS} = -10V
* $R_{DS(ON)}$<35mΩ@V_{GS} = -4.5V
* Simple Drive Requirement
* Lower On-resistance
* Fast Switching

Description:

The WTK4435 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.
The SOP-8 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Maximum Ratings (T_A=25˚C Unless Otherwise Specified)

Rating	Symbol	Value	Unite
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_A =25°C) (T_A =70°C)	I_D	-8 -6	A
Pulsed Drain Current (1)	I_{DM}	-50	A
Power Dissipation (T_A =25°C)	P_D	2.5	W
Maximax Junction-to-Ambient	$R\theta_{JA}$	50	°C/W
Operating Junction Temperature Range	T_J	+150	°C
Storage Temperature Range	Tstg	-55 to +150	°C

Device Marking

WTK4435=4435SC

Electrical Characteristics (T_A=25°C Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Static					
Drain-Source Breakdown Voltage V_{GS}=0V, I_D=-250 uA	$V_{(BR)DSS}$	-30	-	-	V
Gate-Source Threshold Voltage V_{DS}=V_{GS}, I_D=-250 uA	$V_{GS\ (th)}$	-1.0	-	-3.0	V
Gate-Source Leakage Current V_{DS}=0V, V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current V_{DS}=-30V, V_{GS}=0V V_{DS}=-24V, V_{GS}=0V	I_{DSS}	-	-	-1 -5	μA
Drain-Source On-Resistance V_{GS}=-10V, I_D=-8A V_{GS}=-4.5V, I_D=-5A	$R_{DS\ (on)}$	- -	- -	20 35	mΩ
Forward Transconductance V_{DS}=-10V , I_D=-8A	g_{fs}	-	20	-	S
Dynamic					
Input Capacitance V_{DS}=-15V, V_{GS}=0V, f=1MHZ	C_{iss}	-	2800	-	pF
Output Capacitance V_{DS}=-15V, V_{GS}=0V, f=1MHZ	C_{oss}	-	1400	-	
Reverse Transfer Capacitance V_{DS}=-15V, V_{GS}=0V, f=1MHZ	C_{rss}	-	350	-	
Switching					
Turn-On Delay Time(2) V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_G = 6Ω, R_D = 15Ω	$t_{d(on)}$	-	30	-	nS
Rise Time V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_G = 6Ω, R_D = 15Ω	t_r	-	20	-	nS
Turn-Off Time V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_G = 6Ω, R_D = 15Ω	$t_{d(off)}$	-	120	-	nS
Fall Time V_{DS} = -15V, I_D = -1A, V_{GS} = -10V, R_G = 6Ω, R_D = 15Ω	t_f	-	80	-	nS
Total Gate Charge(2) V_{DS}=-15V, I_D=-4.6A, V_{GS}=-10V	Qg	-	47	-	nc
Gate-Source Charge V_{DS}=-15V, I_D=-4.6A, V_{GS}=-10V	Qgs	-	9.5	-	nc
Gate-Drain Charge V_{DS}=-15V, I_D=-4.6A, V_{GS}=-10V	Qgd	-	8	-	nc
Drain-Source Diode Forward Voltage(2) V_{GS}=0V, I_S=-2.1A	V_{SD}	-	-0.75	-1.2	V
Continuous Source Current(Body Diode) V_D=V_G=0V, Vs=-1.2V	I_S	-	-	-2.1	A
Pulsed Source Current(Body Diode)(1)	I_{SM}	-	-	-50	A

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

Characteristics Curve

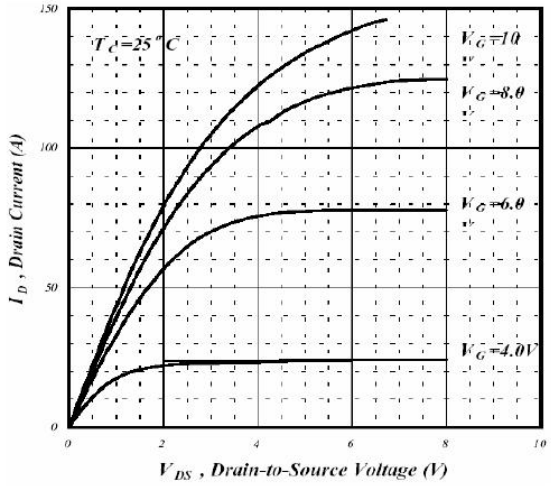


Fig 1. Typical Output Characteristics

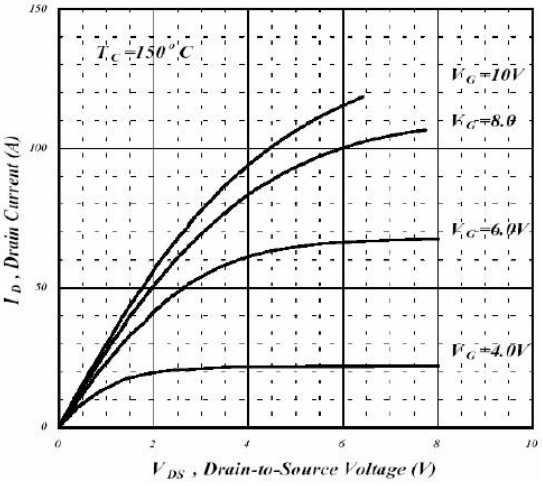


Fig 2. Typical Output Characteristics

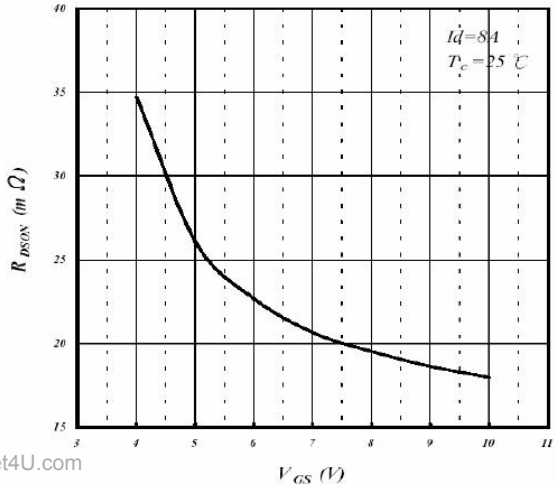


Fig 3. On-Resistance v.s. Gate Voltage

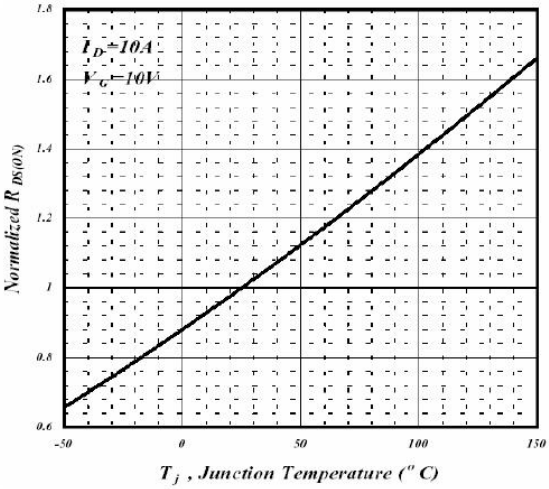


Fig 4. Normalized On-Resistance v.s. Junction Temperature

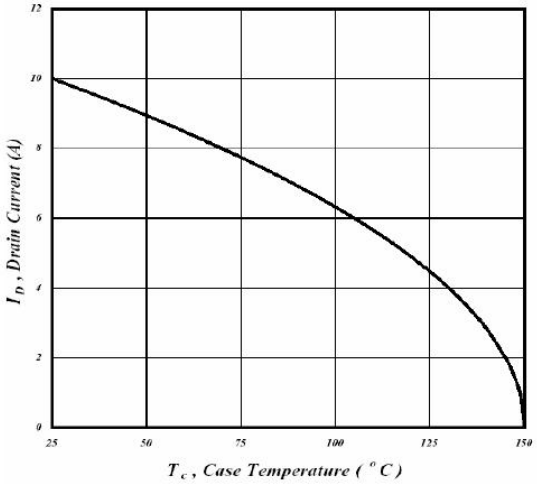


Fig 5. Maximum Drain Current v.s. Case Temperature

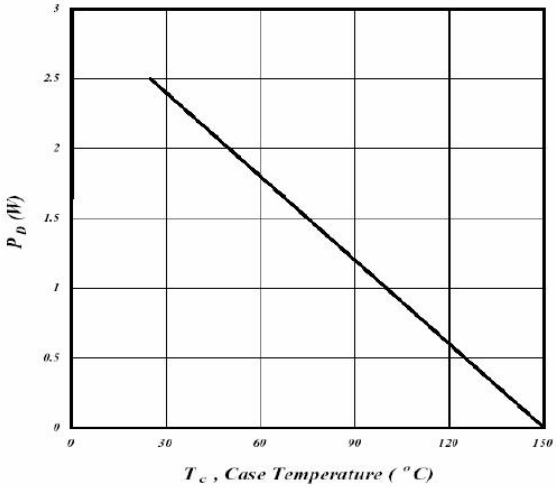


Fig 6. Type Power Dissipation

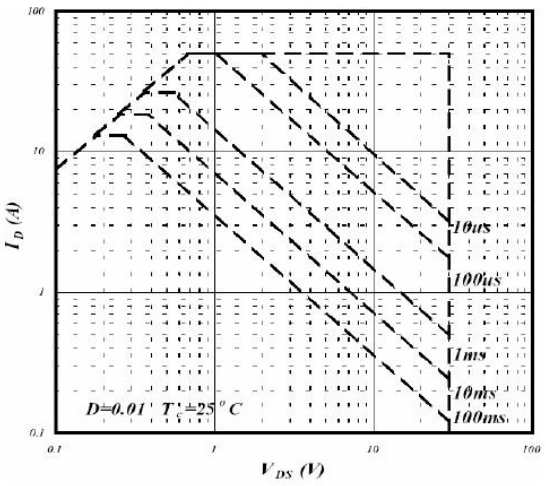


Fig 7. Maximum Safe Operating Area

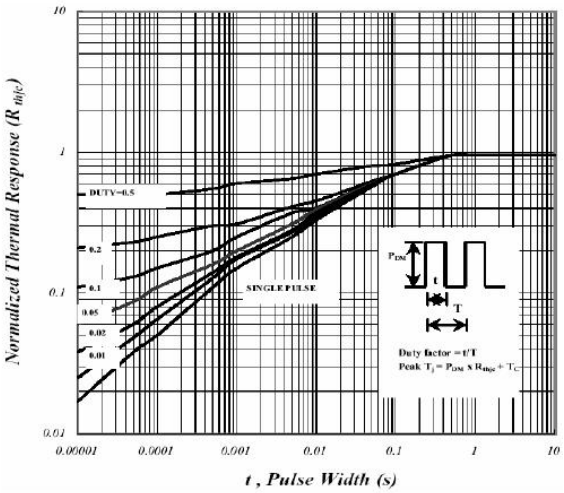


Fig 8. Effective Transient Thermal Impedance

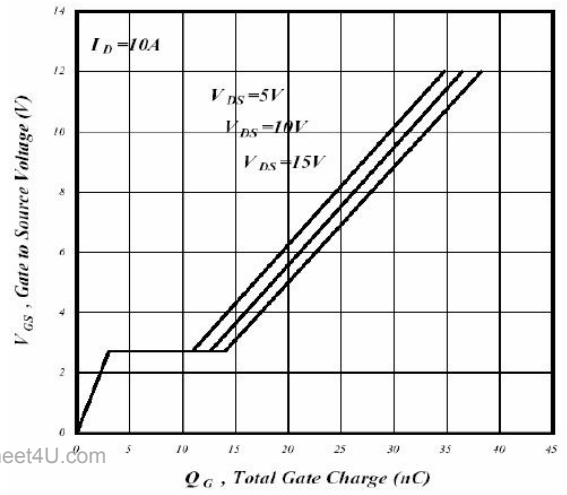


Fig 9. Gate Charge Characteristics

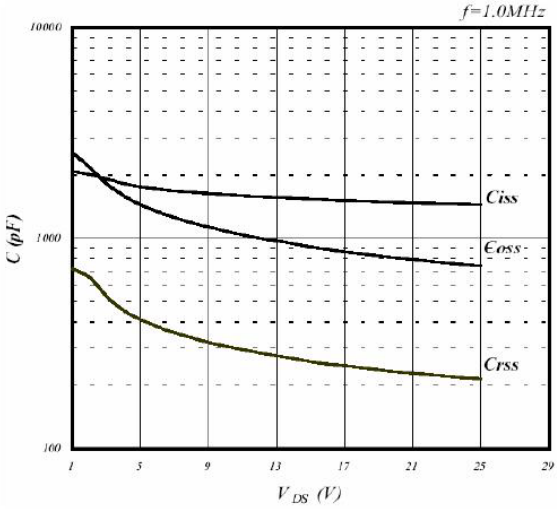


Fig 10. Typical Capacitance Characteristics

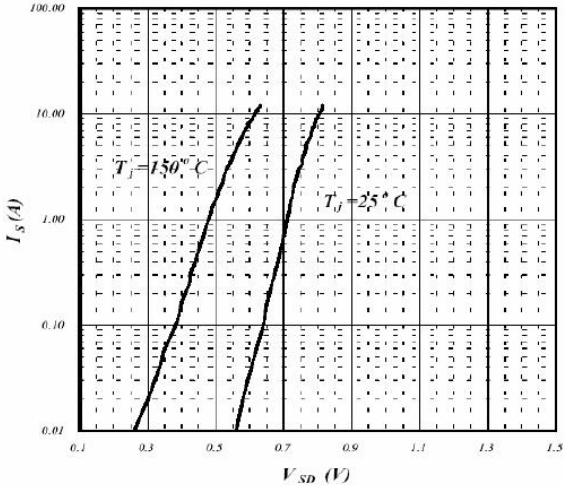


Fig 11. Forward Characteristics of Reverse Diode

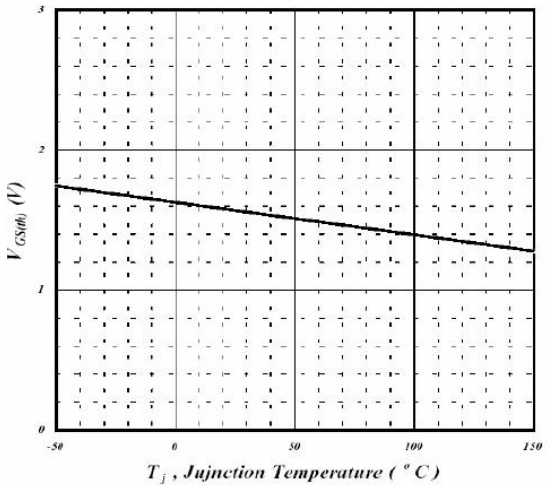


Fig 12. Gate Threshold Voltage v.s. Junction Temperature

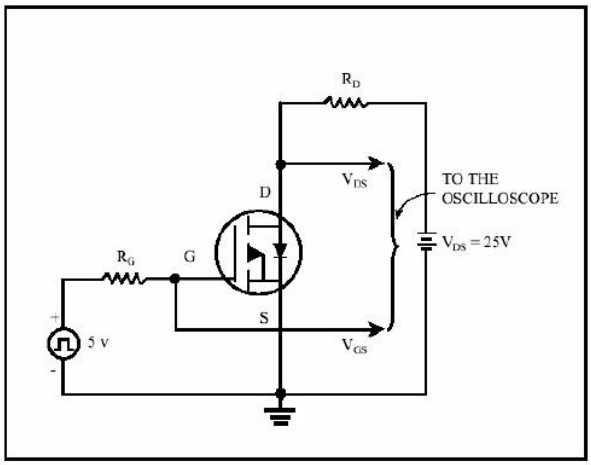


Fig 13. Switching Time Circuit

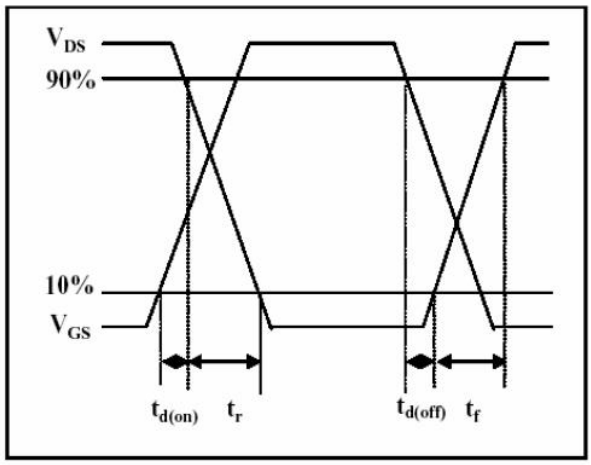


Fig 14. Switching Time Waveform

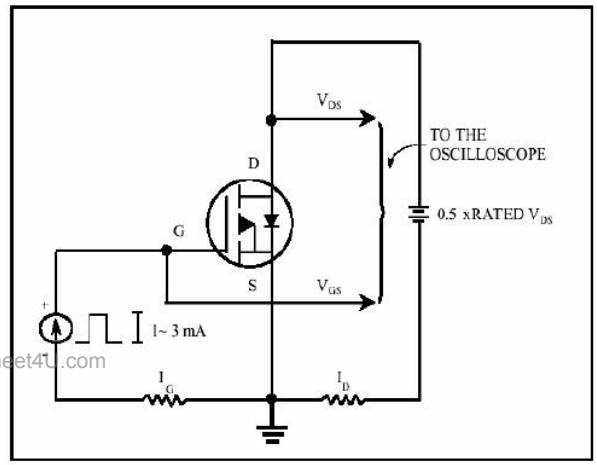


Fig 15. Gate Charge Circuit

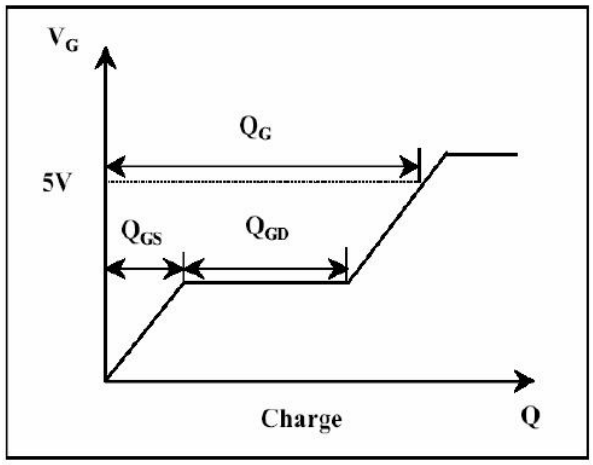
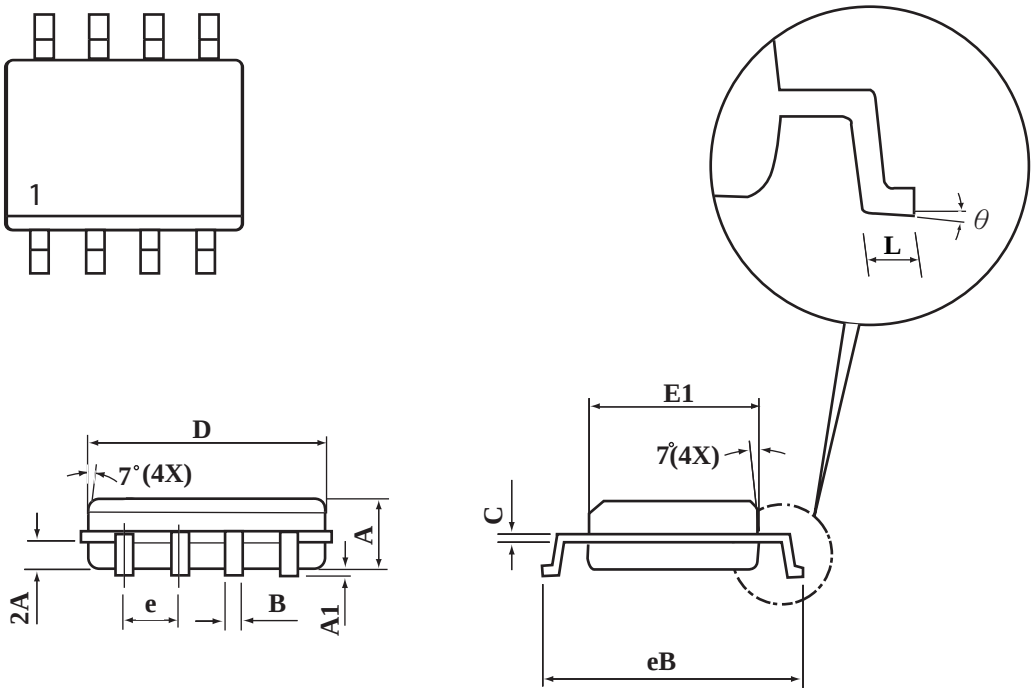


Fig 16. Gate Charge Waveform

SOP-8 Package Outline Dimensions

Unit:mm



SYMBOLS	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.20
B	0.35	0.45
C	0.18	0.23
D	4.69	4.98
E1	3.56	4.06
eB	5.70	6.30
e	1.27 BSC	
L	0.60	0.80
θ	0°	8°