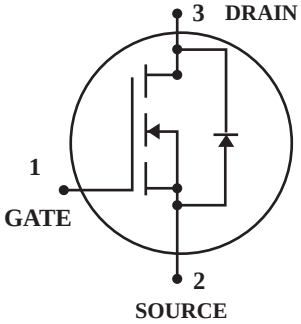
WEITRON

WTC2306

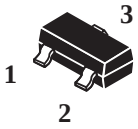
N-Channel Enhancement Mode Power MOSFET

Lead(Pb)-Free



DRAIN CURRENT
5.8 AMPERES

DRAIN SOURCE VOLTAGE
30 VOLTAGE



SOT-23

Features:

* Super High Dense Cell Design For Low $R_{DS}(on)$
  $R_{DS}(on)$ < 38mΩ @ V_{GS} = 10V
* Rugged and Reliable
* Simple Drive Requirement
* SOT-23 Package

Applications:

* Power Management in Notebook Computer
* Portable Equipment
* Battery Powered System

Maximum Ratings (TA=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	5.8	A
Pulsed Drain Current[1]	I_{DM}	30	A
Total Power Dissipation (TA=25°C)	P_D	1.4	W
Maximum Junction-Ambient[2]	$R_{\theta JA}$	140	°C/W
Operating Junction Temperature Range	T_J	-55~+150	°C
Storage Temperature Range	T_{stg}	-55~+150	°C

Note: 1. Repetitive Rating: Pulse width limited by the maximum junction temperature
2. 1-in² 2oz Cu PCB board
3. Guaranteed by design; not subject to production testing

Device Marking

WTC2306 = N06

Electrical Characteristics (TA=25°C Unless Otherwise Specified)

Characteristic	Symbol	Min	Typ	Max	Unit
Static					
Drain-Source Breakdown Voltage V_{GS}=0V, I_D=250μA	$V_{(BR)DSS}$	30	-	-	V
Gate-Source Threshold Voltage V_{DS}=V_{GS}, I_D=250μA	$V_{GS\ (th)}$	0.7	-	1.4	V
Gate-Source Leakage Current V_{DS}=0V, V_{GS}=±12V	I_{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current V_{DS}=24V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Drain-Source On-Resistance V_{GS}=2.5V , I_D=4.0A V_{GS}=4.5V , I_D=5.0A V_{GS}=10V , I_D=5.8A	$R_{DS(on)}$	- - -	45 34 31	62 43 38	mΩ
Gate Resistance V_{GS}=0V, V_{DS}=0V, f=1HMz	R_g	6	7	7.5	Ω
Forward Transconductance V_{DS}=5V, I_D=5A	g_{fs}	10	15	-	S
Switching					
Turn-On Delay Time(2) V_{DD}=15V, I_D=1A, V_{GEN}=10V, R_G=3Ω, R_L=2.7Ω	$t_{d(on)}$	-	7	14	nS
Rise Time V_{DD}=15V, I_D=1A, V_{GEN}=10V, R_G=3Ω, R_L=2.7Ω	t_r	-	15	30	nS
Turn-Off Time V_{DD}=15V, I_D=1A, V_{GEN}=10V, R_G=3Ω, R_L=2.7Ω	$t_{d(off)}$	-	38	76	nS
Fall Time V_{DD}=15V, I_D=1A, V_{GEN}=10V, R_G=3Ω, R_L=2.7Ω	t_f	-	3	6	nS
Total Gate Charge(2) V_{DS}=15V, I_D=5.8A,V_{GS}=4.5V	Qg	-	11	14.3	nc
Gate-Source Charge V_{DS}=15V, I_D=5.8A,V_{GS}=4.5V	Qgs	-	1.6	2.08	nc
Gate-Drain Charge V_{DS}=15V, I_D=5.8A,V_{GS}=4.5V	Qgd	-	2.8	3.64	nc
Drain-Source Diode Forward Voltage(2) V_{GS}=0V, I_S=1.0A	V_{SD}	-	-	1.2	V
Continuous Source Current (Body Diode)	I_S	-	-	2.5	A

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

TYPICAL ELECTRICAL CHARACTERISTICS

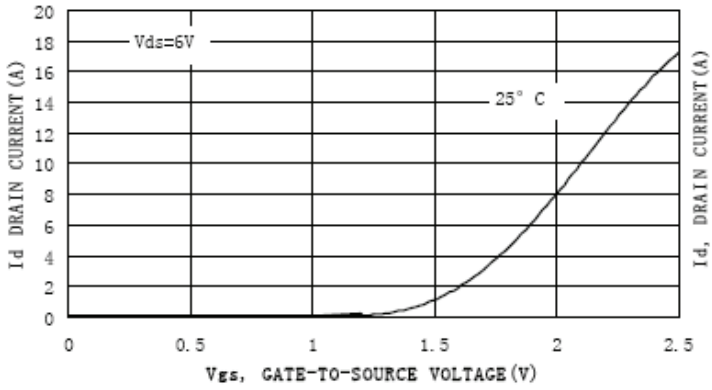


Figure 1. Transfer Characteristics

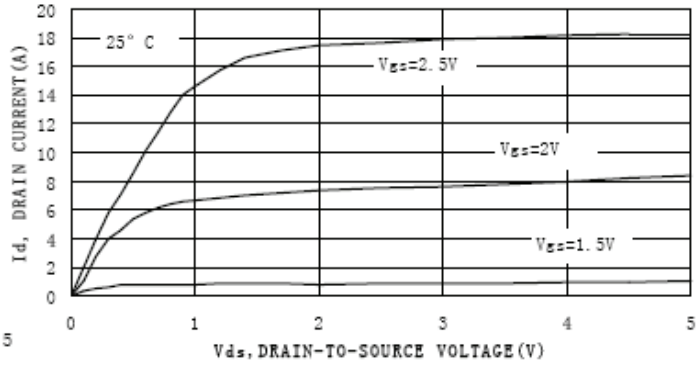


Figure 2. On–Region Characteristics

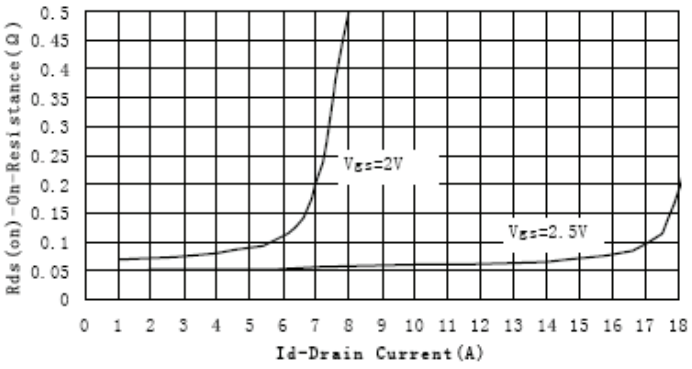


Figure 3. On–Resistance versus Drain Current

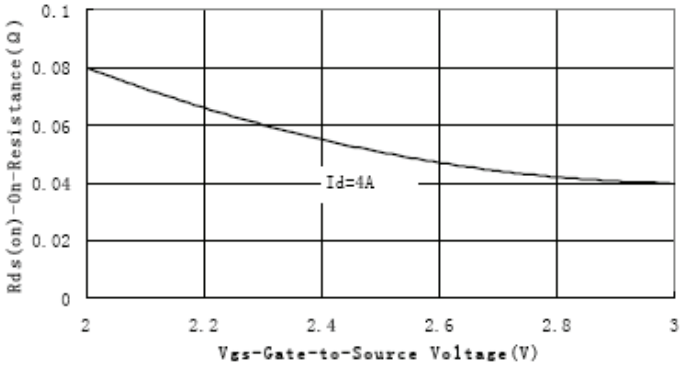
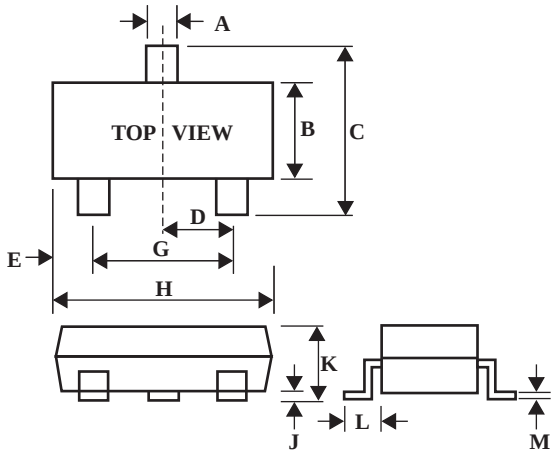


Figure 4. On-Resistance vs. Gate-to-Source Voltage

SOT-23 Outline Dimension



SOT-23		
Dim	**Min**	**Max**
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25