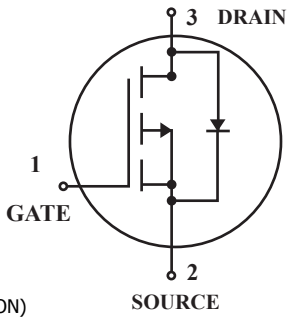
WEITRON

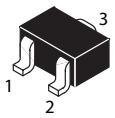
WTU1333

Surface Mount P-Channel Enhancement Mode MOSFET

Lead(Pb)-Free



DRAIN CURRENT
-550m AMPERES
DRAIN SOURCE VOLTAGE
-20 VOLTAGE



SOT-323

Features:

*Super High Dense Cell Design For Low $R_{DS(ON)}$
$R_{DS(ON)}$ <600mΩ@V_{GS}=-10V
*Simple Gate Drive
*Small package Outline
*Fast Switching Speed
*SOT-323 Package

Description

*Designer with best combination of fast switching
*Low on-resistance
*Cost-effectiveness

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

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current[3] ,(T_A=25°C)	I_D	-550	mA
,(T_A=70°C)		-440	
Pulsed Drain Current[1,2]	I_{DM}	2.5	
Total Power Dissipation(T_A=25°C)	P_D	0.35	W
Maximum Thermal Resistace Junction-ambient[3]	$R_{\theta JA}$	360	°C/W
Operating Junction and Storage Temperature Range	TJ,Tstg	-55~+150	°C

Device Marking

WTU1333=1333

Electrical Characteristics (T_A = 25℃ Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit

Static

Drain-Source Breakdown Voltage V_{GS}=0,I_D=-250μA	BV_{DSS}	-20	-	-	V
Gate-Source Threshold Voltage V_{DS}=V_{GS},I_D=-250μA	$V_{GS(Th)}$	-0.5	-	-1.2	
Gate-Source Leakage current V_{GS}=±12V	I_{GSS}	-	-	±100	nA
Drain-SourceLeakage Current(Tj=25˚C) V_{DS}=-20V,V_{GS}=0	I_{DSS}	-	-	-1	μA
Drain-SourceLeakage Current(Tj=70˚C) V_{DS}=-16V,V_{GS}=0		-	-	-10	
Drain-SourceOn-Resistance V_{GS}=-10V,I_D=-550mA V_{GS}=-4.5V,I_D=-500mA V_{GS}=-2.5V,I_D=-300mA	$R_{DS(on)}$	- - -	- - -	600 800 1000	mΩ
Forward Transconductance V_{DS}=-5V,I_D=-550mA	gfs	-	1	-	S

Dynamic

Input Capacitance V_{GS}=0V,V_{DS}=-10V,f=1.0MHz	C_{iss}	-	66	105.6	pF
Output Capacitance V_{GS}=0V,V_{DS}=-10V,f=1.0MHz	C_{oss}	-	25	-	
Reverse Transfer Capacitance V_{GS}=0V,V_{DS}=-10V,f=1.0MHz	C_{rss}	-	20	-	

Switching

Turn-on Delay Time[2] V_{DS}=-10V,V_{GS}=-5V,I_D=-500mA,R_D=20Ω,R_G=3.3Ω	$t_{d(on)}$	-	5	-	ns
Rise Time V_{DS}=-10V,V_{GS}=-5V,I_D=-500mA,R_D=20Ω,R_G=3.3Ω	t_r	-	8	-	
Turn-off Delay Time V_{DS}=-10V,V_{GS}=-5V,I_D=-500mA,R_D=20Ω,R_G=3.3Ω	$t_{d(off)}$	-	10	-	
Fall Time V_{DS}=-10V,V_{GS}=-5V,I_D=-500mA,R_D=20Ω,R_G=3.3Ω	t_f	-	2	-	
Total Gate Charge[2] V_{DS}=-16V,V_{GS}=-4.5V,I_D=-500mA	Q_g	-	1.7	2.7	nC
Gate-Source Charge V_{DS}=-16V,V_{GS}=-4.5V,I_D=-500mA	Q_{gs}	-	0.3	-	
Gate-Source Change V_{DS}=-16V,V_{GS}=-4.5V,I_D=-500mA	Q_{gd}	-	0.4	-	

Source-Drain Diode Characteristics

Forward On Voltage[2] V_{GS}=0V,I_S=-300mA	V_{SD}	-	-	-1.2	V

Note: 1. Pulse width limited by Max, junction temperature.
2. Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. Surface mounted on FR4 board, t ≤ 10sec.

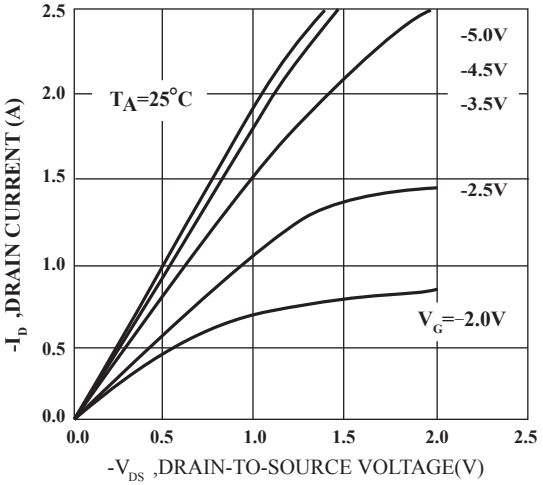


FIG.1 Typical Output Characteristics

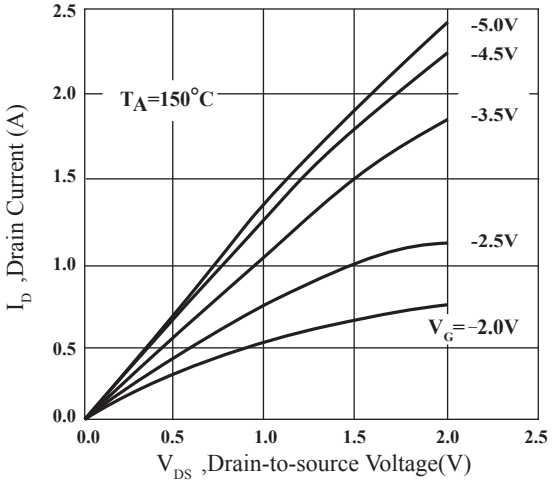


Fig.2 Typical Output Characteristics

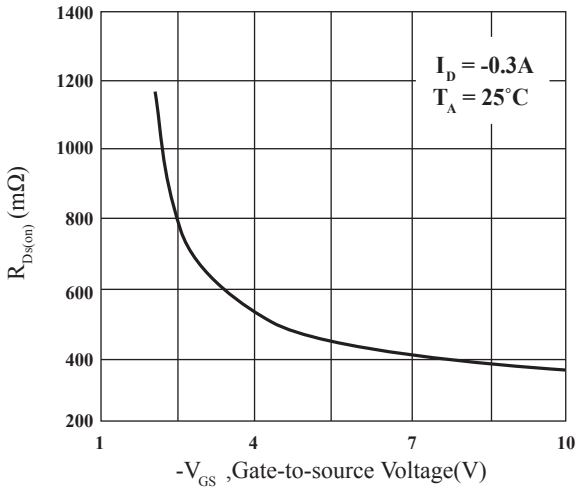


Fig.3 On-Resistance v.s. Gate Voltage

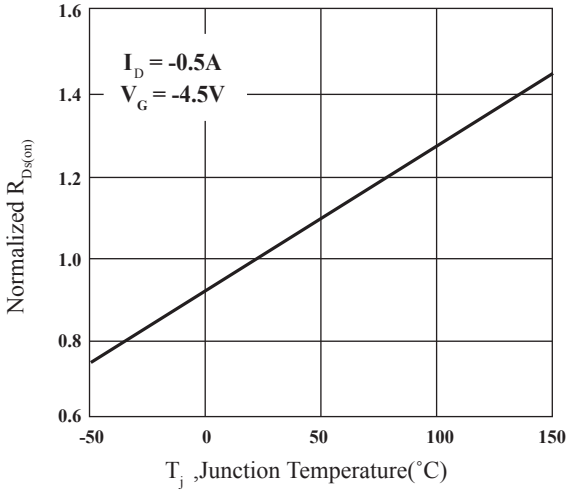


Fig.4 Normalized OnResistance

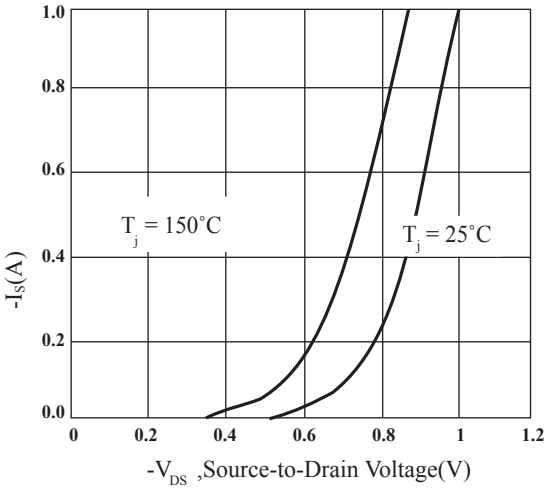


Fig.5 Forward Characteristics of Reverse Diode

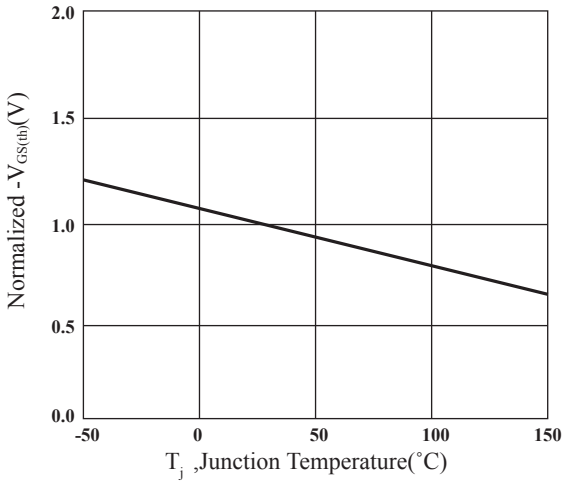


Fig.6 Gate Threshold Voltage v.s. Junction Temperature

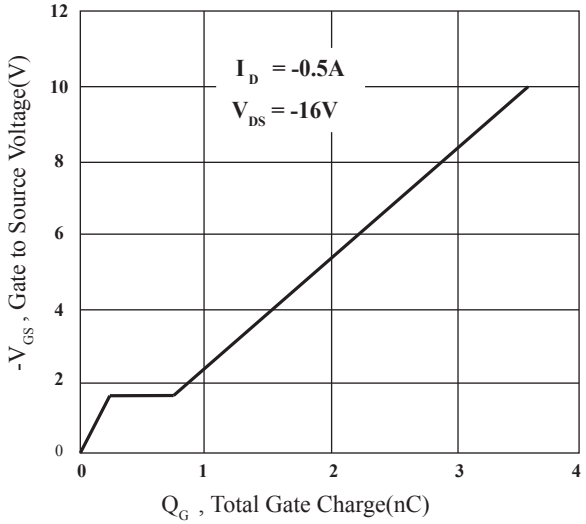


Fig 7. Gate Charge Characteristics

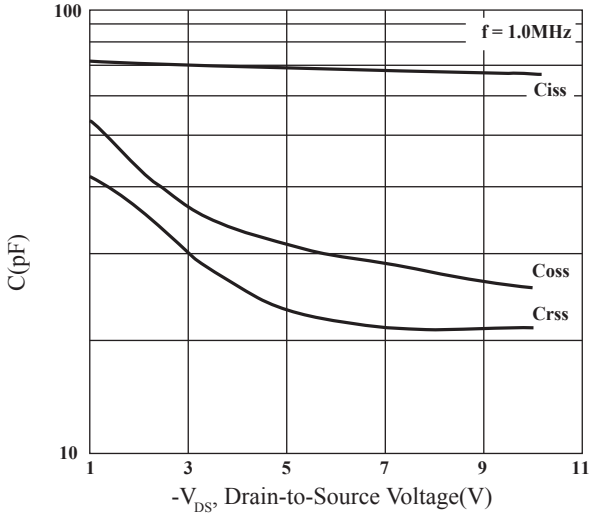


Fig 8. Typical Capacitance Characteristics

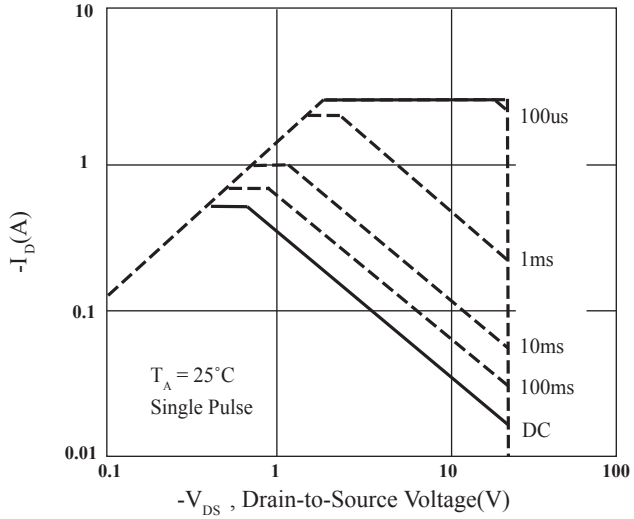


Fig 9. Maximum Safe Operation Area

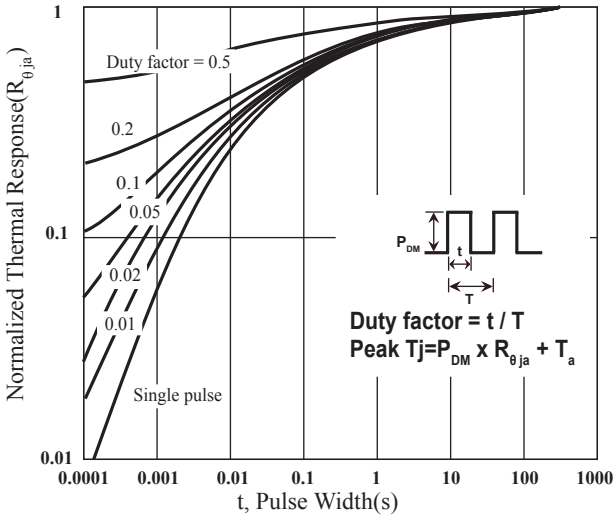


Fig 10. Effective Transient Thermal Impedance

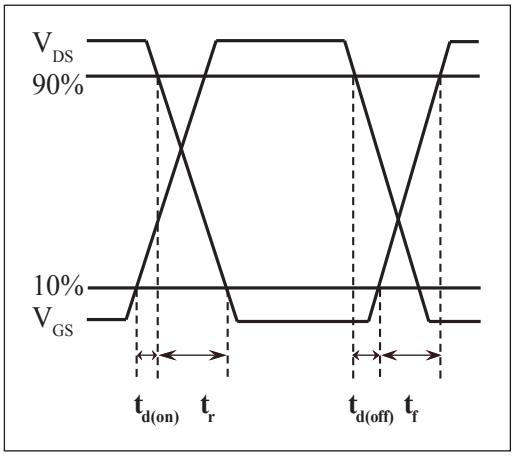


Fig 11. Switching Time Circuit

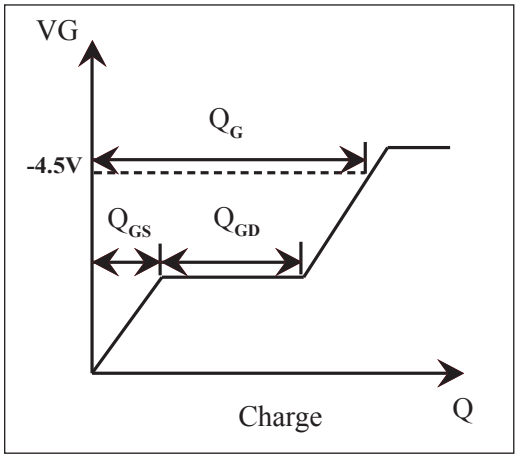
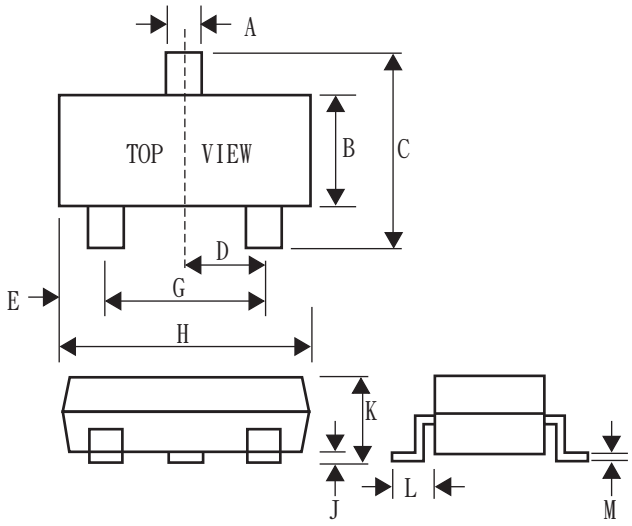


Fig.12 Gate Charge Waveform

SOT-323 Outline Demensions

Unit:mm



SOT-323		
Dim	**Min**	**Max**
A	0.30	0.40
B	1.15	1.35
C	2.00	2.40
D	-	0.65
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.00	0.10
K	0.80	1.00
L	0.42	0.53
M	0.10	0.25