Shenzhen XTS technology co., LTD
WWW.NEWTITH.COM
TEL:86655148

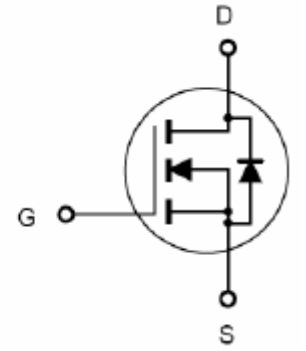
N-Channel Enhancement Mode

Field Effect Transistor

CE2312

- **Capable of 2.5V gate drive**
- **Small package outline**
- **Surface mount package**
- **Pb-Free package is available**

SOT23



■ Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	20	V
VGS	Gate-Source Voltage	±12	V
ID@TA=25℃	Continuous Drain Current3, VGS @ 4.5V	3.2	A
ID@TA=70℃	Continuous Drain Current3, VGS @ 4.5V	2.6	A
IDM	Pulsed Drain Current1,2	10	A
PD@TA=25℃	Total Power Dissipation	1.38	W
	Linear Derating Factor	0.01	W/℃
TSTG	Storage Temperature Range	-55 to 150	℃
TJ	Operating Junction Temperature Range	-55 to 150	℃

■ Thermal Data

Symbol	Parameter		Value	Unit
Rthj-a	Thermal Resistance Junction-ambient3	Max.	90	℃/W

■ Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250uA	20	-	-	V
ΔBVDSS/ ΔTj	Breakdown Voltage Temperature Coefficient	Reference to 25℃, ID=1mA	-	0.1	-	V/℃
RDS(ON)	Static Drain-Source On-Resistance2	VGS=4.5V, ID=3.6A	-	-	85	mΩ
		VGS=2.5V, ID=3.1A	-	-	115	mΩ
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250uA	0.5	-	1.2	V
gfs	Forward Transconductance	VDS=5V, ID=3.6A	-	6	-	S
IDSS	Drain-Source Leakage Current (Tj=25oC)	VDS=20V, VGS=0V	-	-	1	uA
	Drain-Source Leakage Current (Tj=70oC)	VDS=20V ,VGS=0V	-	-	10	uA
IGSS	Gate-Source Leakage	VGS=±12V	-	-	±100	nA
Qg	Total Gate Charge2	ID=3.6A	-	4.4	-	nC
Qgs	Gate-Source Charge	VDS=10V	-	0.6	-	nC
Qgd	Gate-Drain ("Miller") Charge	VGS=4.5V	-	1.9	-	nC
td(on)	Turn-on Delay Time2	VDS=10V	-	5.2	-	ns
tr	Rise Time	ID=3.6A	-	37	-	ns
td(off)	Turn-off Delay Time	RG=6Ω,VGS=5V	-	15	-	ns
tf	Fall Time	RD=2.8Ω	-	5.7	-	ns
Ciss	Input Capacitance	VGS=0V	-	145	-	pF
Coss	Output Capacitance	VDS=10V	-	100	-	pF
Crss	Reverse Transfer Capacitance	f=1.0MHz	-	50	-	pF

■ Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
IS	Continuous Source Current (Body Diode)	VD=VG=0V , VS=1.2V	-	-	1	A
ISM	Pulsed Source Current (Body Diode)1		-	-	10	A
VSD	Forward On Voltage2	IS=1.6A, VGS=0V	-	-	1.2	V

Notes:

1.Pulse width limited by Max. junction temperature.

2.Pulse width ≤300us , duty cycle ≤2%.

3.Surface mounted on 1 in^2 copper pad of FR4 board ; 270℃/W when mounted on min. copper pad.

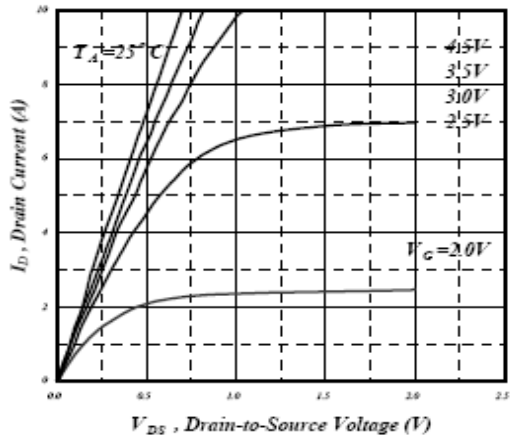


Fig 1. Typical Output Characteristics

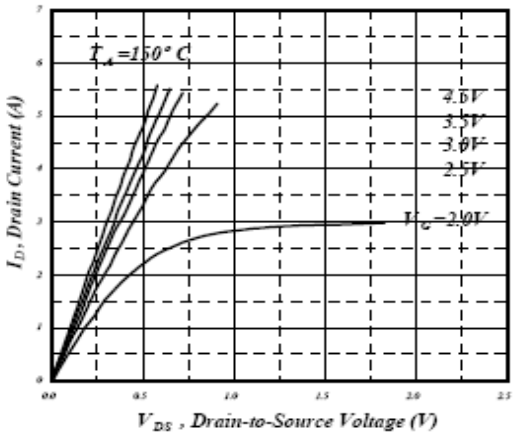


Fig 2. Typical Output Characteristics

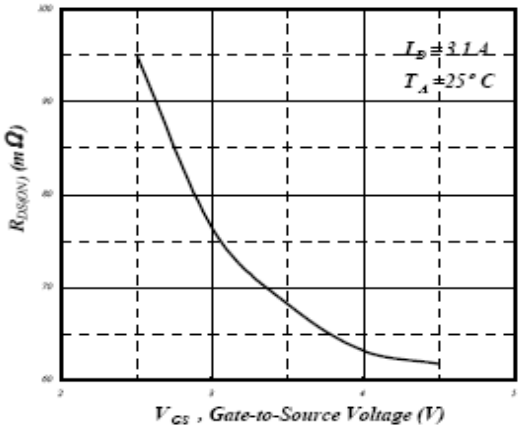


Fig 3. On-Resistance v.s. Gate Voltage

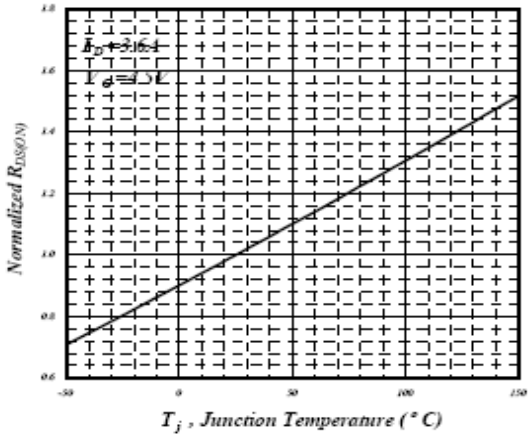


Fig 4. Normalized On-Resistance

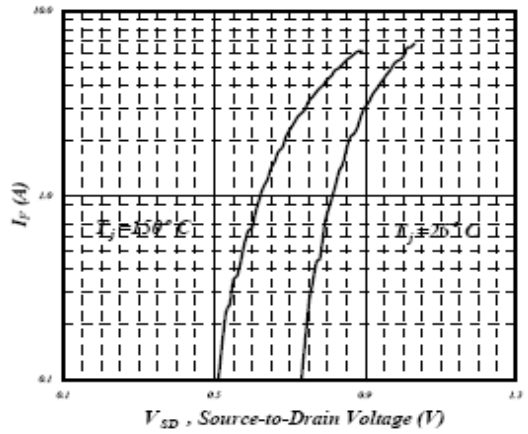


Fig 5. Forward Characteristic of Reverse Diode

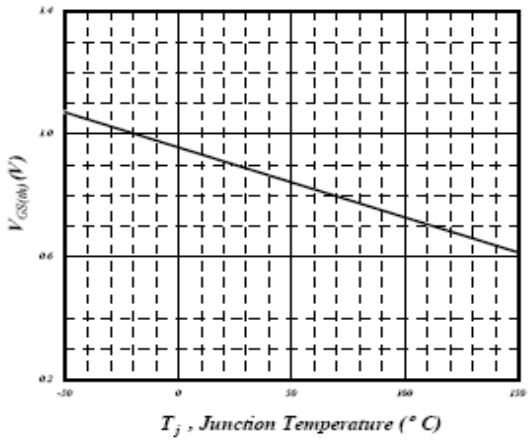


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

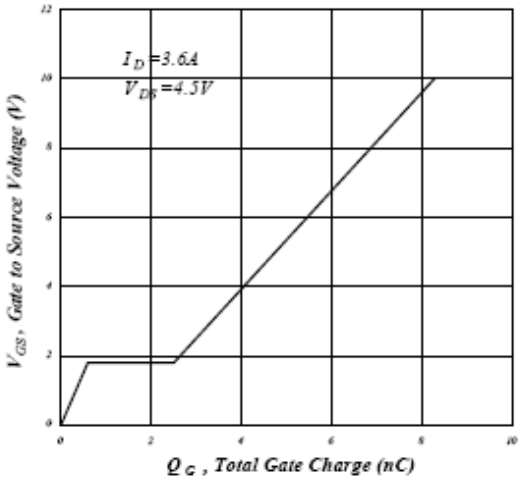


Fig 7. Gate Charge Characteristics

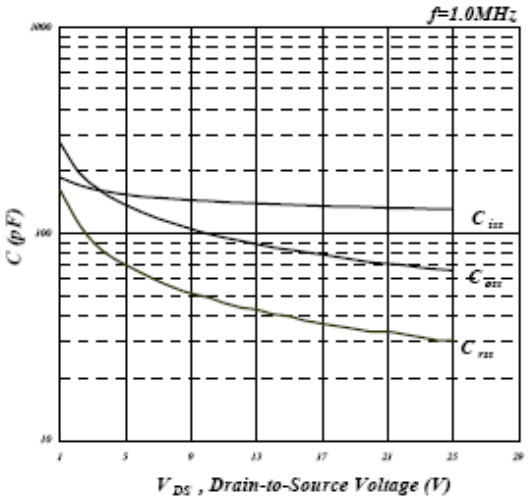


Fig 8. Typical Capacitance Characteristics

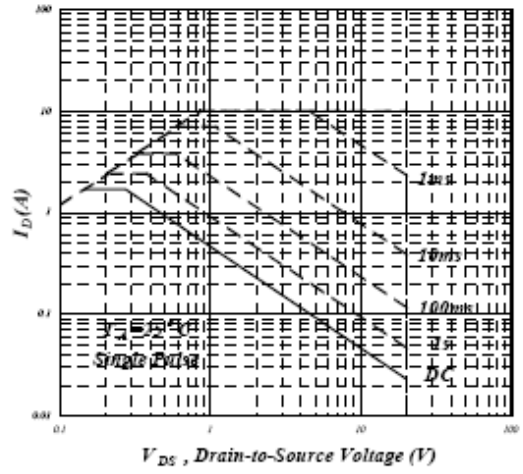


Fig 9. Maximum Safe Operating Area

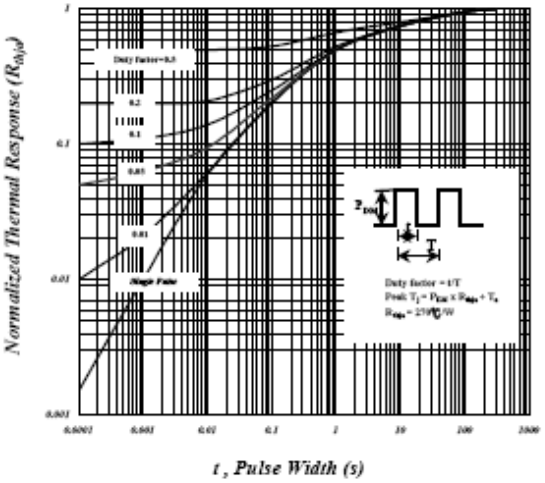


Fig 10. Effective Transient Thermal Impedance

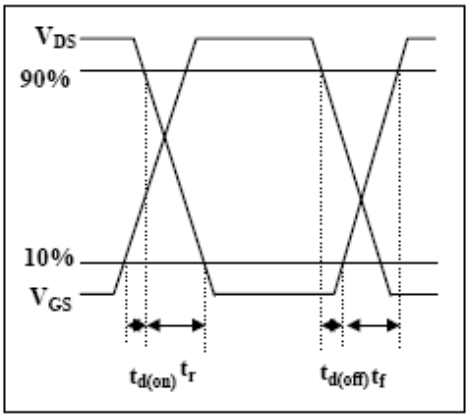


Fig 11. Switching Time Waveform

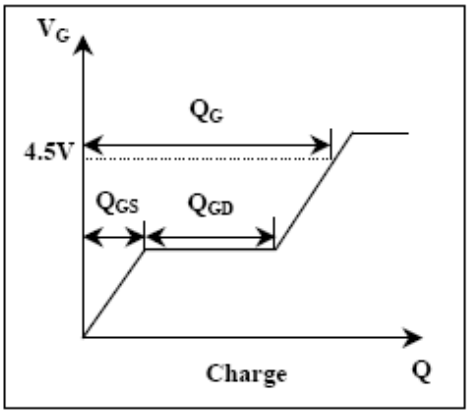
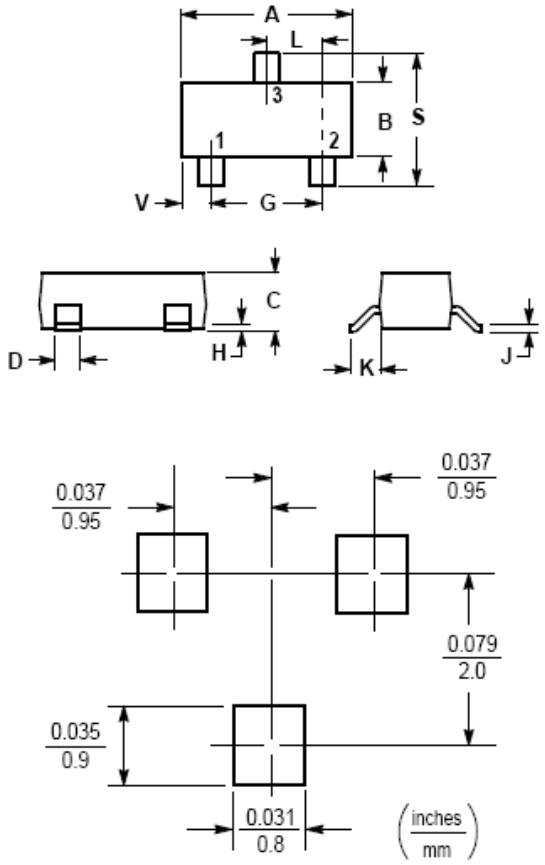


Fig 12. Gate Charge Waveform

SOT–23



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60