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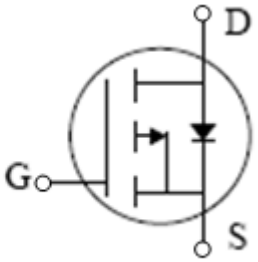
P-Channel Enhancement Mode

Field Effect Transistor

CE2301

- **Simple drive requirement**
- **Small package outline**
- **Surface mount device**
- **Pb-Free package is available**

SOT23



■ Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-20	V
VGS	Gate-Source Voltage	±8	V
ID@TA=25℃	Continuous Drain Current3, VGS @ -4.5V	-2.3	A
IDM	Pulsed Drain Current1,2	-8	A
PD@TA=25℃	Total Power Dissipation	0.9	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.	140	℃/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
RDS(ON)	Static Drain-Source On-Resistance2	VGS=-4.5V, ID=-2.8A	-	69	100	mΩ
		VGS=-2.5V, ID=-2.0A	-	83	150	mΩ
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250uA	-0.45	-	-0.95	V
gfs	Forward Transconductance	VDS=-5V, ID=-4.0A	-	6.5	-	S
IDSS	Drain-Source Leakage Current (Tj=25oC)	VDS=20V, VGS=0V	-	-	-1	uA
IGSS	Gate-Source Leakage	VGS=±8V,VDS=0V	-	-	±100	nA
Qg	Total Gate Charge2	ID=-2.8A VDS=-6V VGS=-4.5V	-	15.23	-	nC
Qgs	Gate-Source Charge		-	5.49	-	nC
Qgd	Gate-Drain ("Miller") Charge		-	2.74	-	nC
td(on)	Turn-on Delay Time2	VDS=-6V ID=-1A RG=6Ω,VGS=-4.5V RD=6Ω	-	17.28	-	ns
tr	Rise Time		-	3.73	-	ns
td(off)	Turn-off Delay Time		-	36.05	-	ns
tf	Fall Time		-	6.19	-	ns
Ciss	Input Capacitance	VGS=0V VDS=-6V f=1.0MHz	-	882.51	-	pF
Coss	Output Capacitance		-	145.54	-	pF
Crss	Reverse Transfer Capacitance		-	97.26	-	pF

■ Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
IS	Continuous Source Current (Body Diode)		-	-	-2.4	A
VSD	Forward On Voltage2	IS=-0.75A, VGS=0V	-	-0.8	-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.

TYPICAL ELECTRICAL CHARACTERISTICS

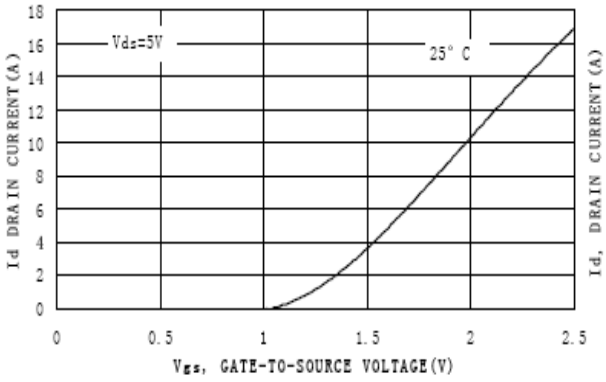


Figure 1. Transfer Characteristics

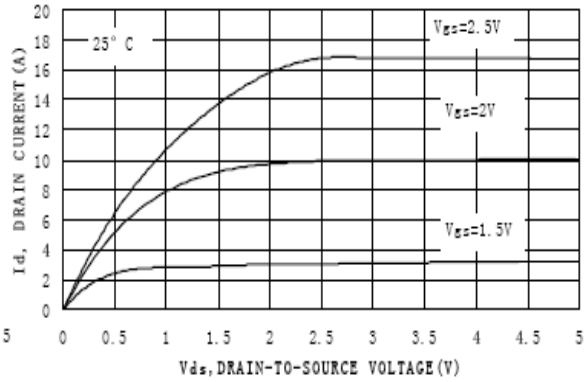


Figure 2. On–Region Characteristics

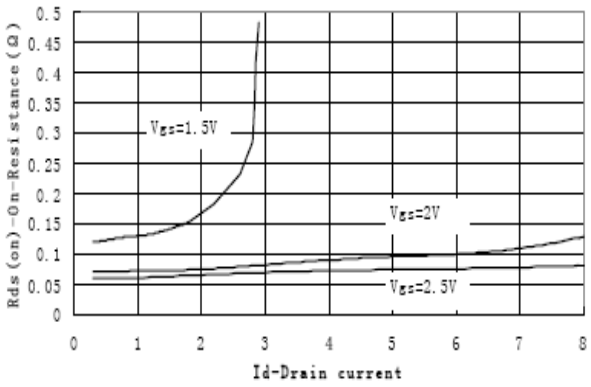


Figure 3. On–Resistance versus Drain Current

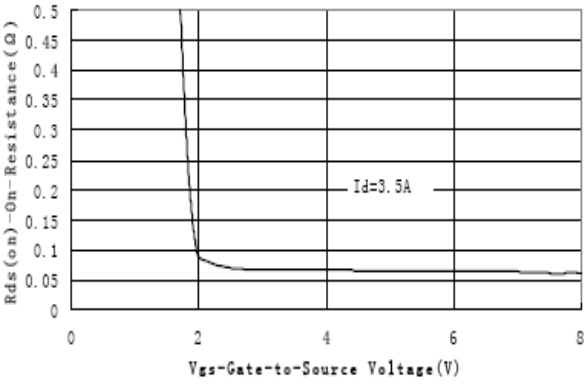


Figure 4. On-Resistance vs. Gate-to-Source Voltage

TYPICAL ELECTRICAL CHARACTERISTICS

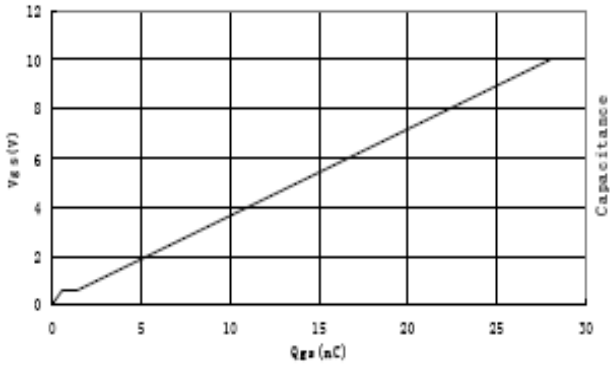


Figure 5. Gate Charge

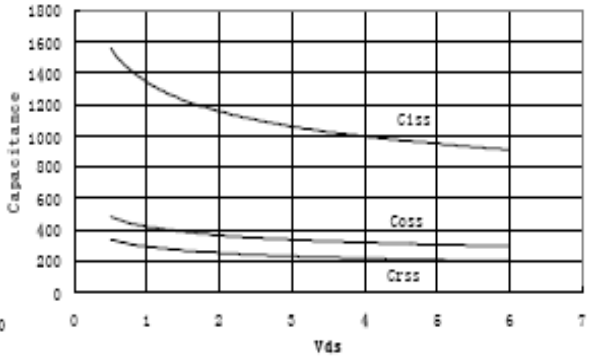


Figure 6. Capacitance

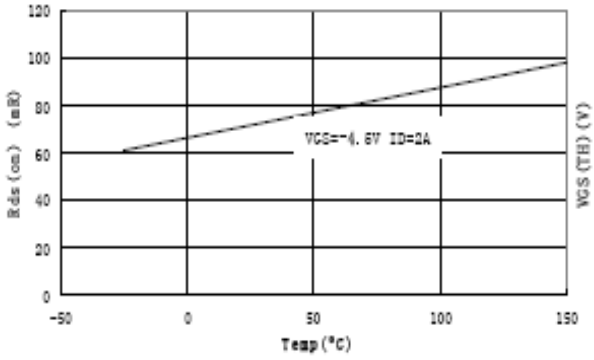


Figure 7. On-Resistance Vs.Junction Temperature

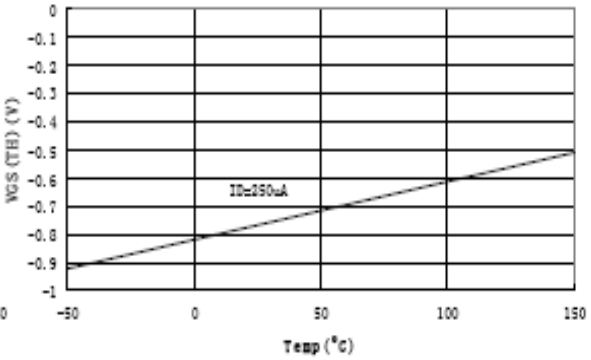
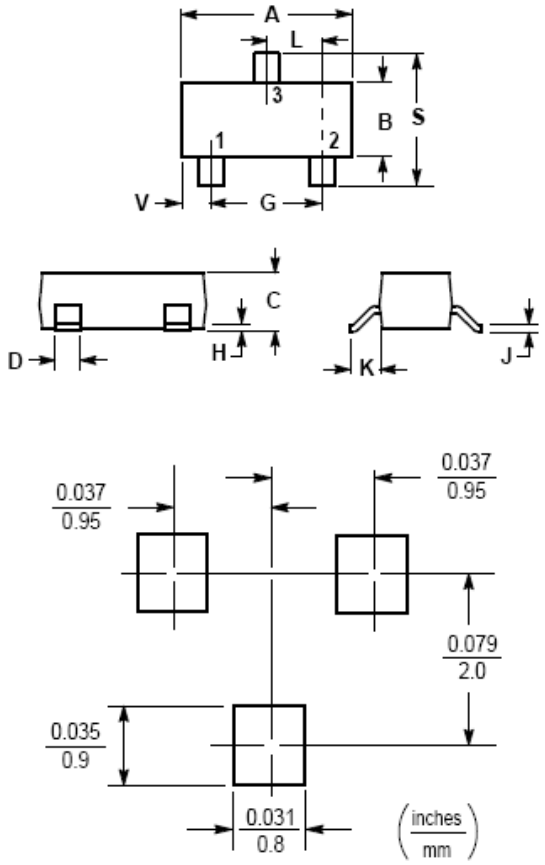


Figure 8. Vth Vs.Junction Temperature

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