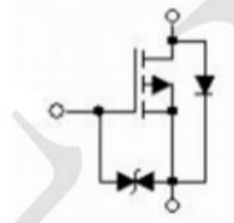## Features

- Lead free
- Surface mount package
- P-Channel switch with low $R_{DS(on)}$
- Operated at low logic level gate drive

Applications

- Load/Power switching
- Interfacing, logic switching
- Battery management for ultra small portable electronics
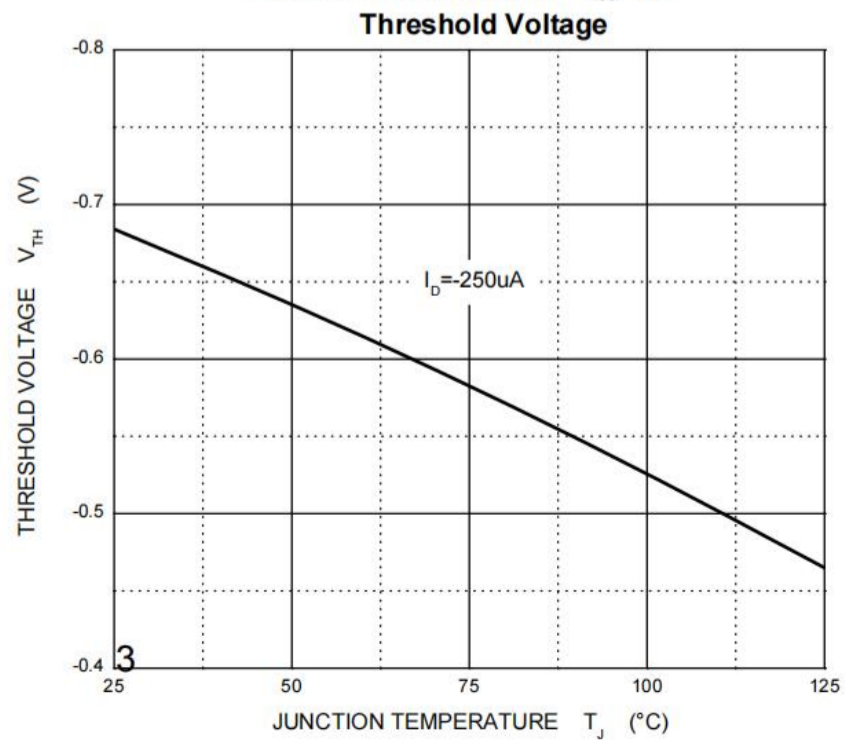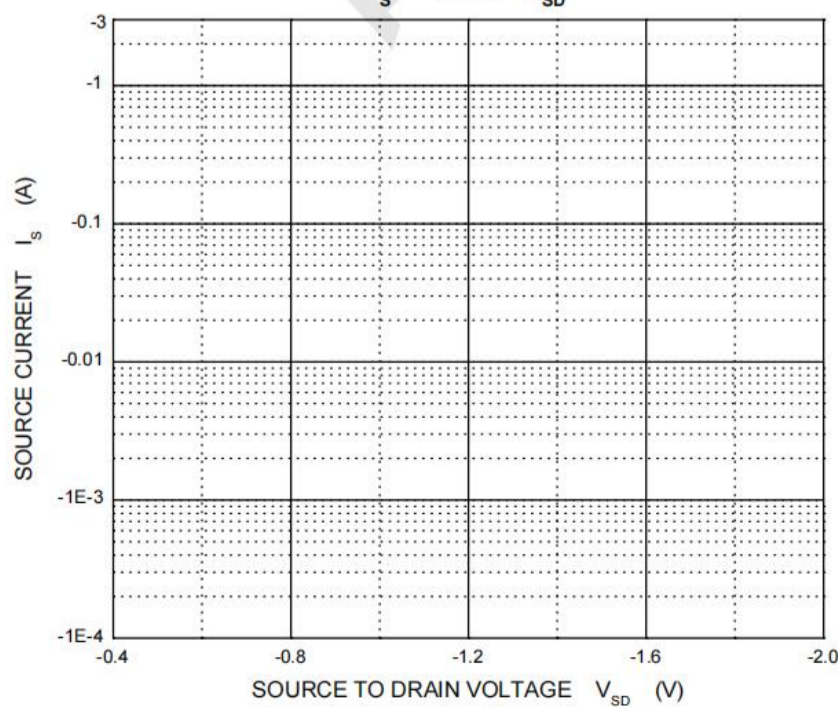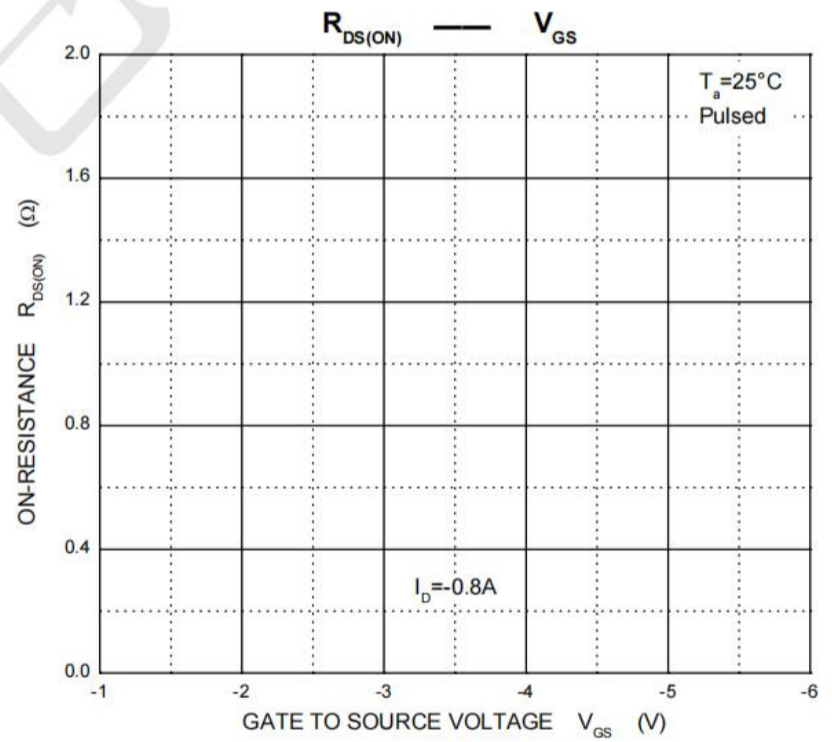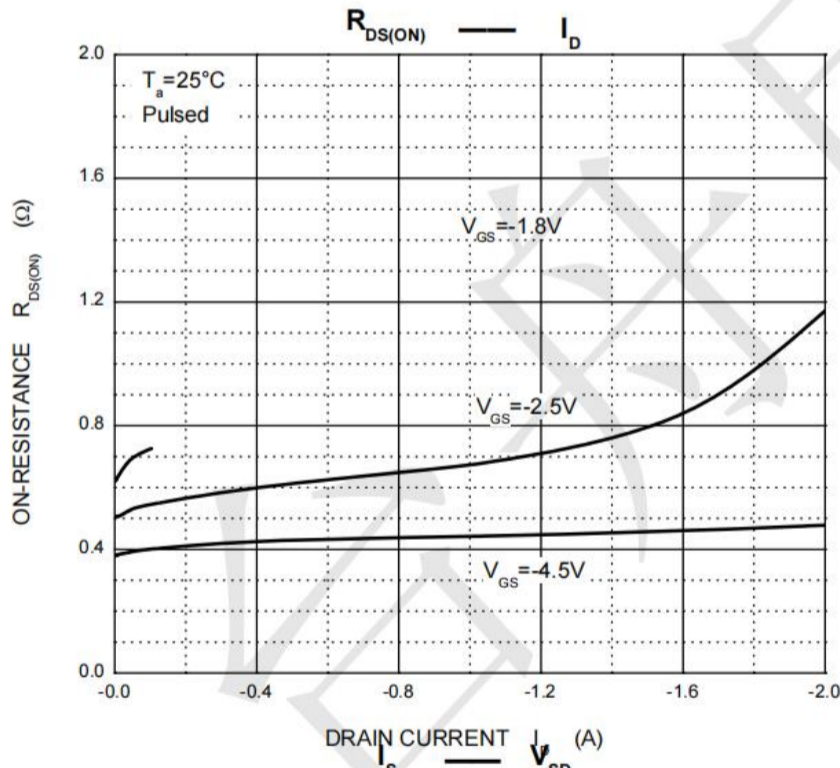
SOT323

Schematic Diagram

Maximum Ratings (T$_A$=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current[1]	I_D	-0.66	A
Pulsed Drain Current (t$_p$=10µS)	I_{DM}	-1.2	A
Power Dissipation[1]	P_D	150	mW
Thermal Resistance from Junction to Ambient[1]	$R_{\theta JA}$	833	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Lead Temperature for Soldering Purposes(1/8" from case for 10 S)	T_L	260	°C

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-20V, V_{GS} = 0V	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V	-	-	20	μA
Gate Threshold Voltage[2]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.35	-	-1.1	V
Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS} =-4.5V, I_D =-1A	-	-	520	mΩ
		V_{GS} =-2.5V, I_D =-0.8A	-	-	700	mΩ
		V_{GS} =-1.8V, I_D =-0.5A	-	-	950	mΩ
Forward Transconductance[2]	g_{FS}	V_{DS} =-10V, I_D =-0.54A	-	1.2	-	S
Diode Forward Voltage	V_{SD}	I_S=-0.5A, V_{GS} = 0V	-	-	-1.2	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	V_{DS} =-16V, V_{GS} =0V, f =1MHz	-	113	170	pF
Output Capacitance	C_{oss}		-	15	25	pF
Reverse Transfer Capacitance	C_{rss}		-	9	15	pF
SWITCHING CHARACTERISTICS						
Turn-on Delay Time[3]	$t_{d(on)}$	V_{GS}=-4.5V, V_{DS}=-10V, I_D =-200mA, R_{GEN}=10Ω	-	9	-	nS
Turn-on Rise Time[3]	t_r		-	5.8	-	nS
Turn-off Delay Time[3]	$t_{d(off)}$		-	32.7	-	nS
Turn-off Fall Time[3]	t_f		-	20.3	-	nS

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Typical Characteristics

Output Characteristics

V_{GS}=-10V V_{GS}=-4.5V V_{GS}=-3V
V_{GS}=-2.5V
V_{GS}=-1.5V

DRAIN CURRENT I_D (A)
DRAIN TO SOURCE VOLTAGE V_{DS} (V)

Transfer Characteristics

V_{DS}=-5.0V
Pulsed
T_a=25°C
T_a=100°C

DRAIN CURRENT I_D (A)
GATE TO SOURCE VOLTAGE V_{GS} (V)

$R_{DS(ON)}$ —— I_D

T_a=25°C
Pulsed
V_{GS}=-1.8V
V_{GS}=-2.5V
V_{GS}=-4.5V

ON-RESISTANCE $R_{DS(ON)}$ (Ω)
DRAIN CURRENT I_S (A)

$R_{DS(ON)}$ —— V_{GS}

T_a=25°C
Pulsed
I_D=-0.8A

ON-RESISTANCE $R_{DS(ON)}$ (Ω)
GATE TO SOURCE VOLTAGE V_{GS} (V)

I_S —— V_{SD}

SOURCE CURRENT I_S (A)
SOURCE TO DRAIN VOLTAGE V_{SD} (V)

Threshold Voltage

I_D=-250uA

THRESHOLD VOLTAGE V_{TH} (V)
JUNCTION TEMPERATURE T_J (°C)

Outline Drawing - SOT323(SC70-3)
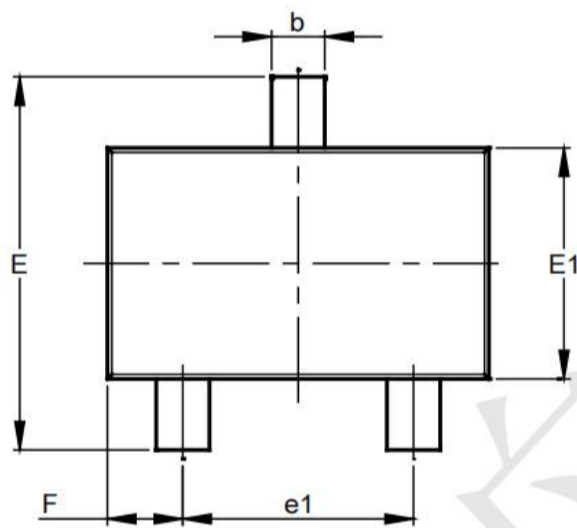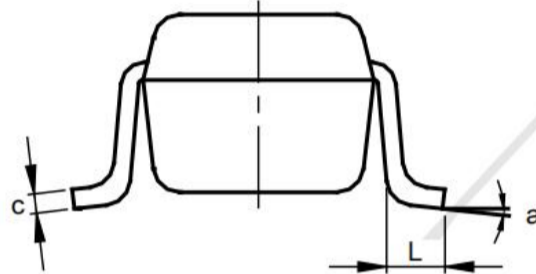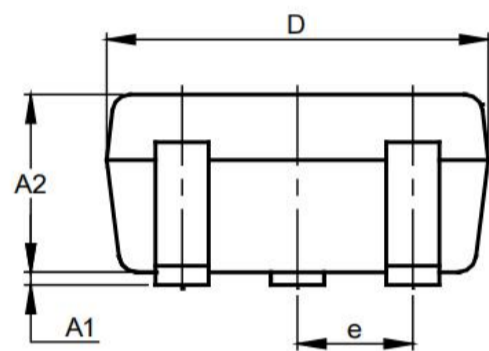
SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Land Pattern - SOT323
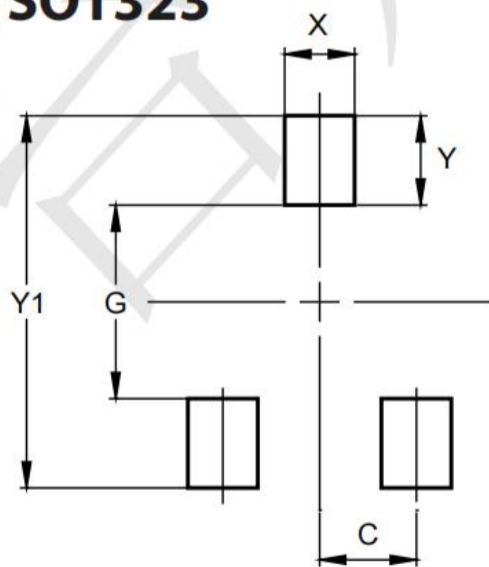
Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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