Features

- -20V,-0.7A $R_{DS(on)}$= 520 mΩ@-4.5V **Max**
- $R_{DS(on)}$= 700mΩ@-2.5V **Max**
- $R_{DS(on)}$= 950 mΩ（TYP）@-1.8V

Application

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package and Pin Configuration

SOT323

Circuit diagram
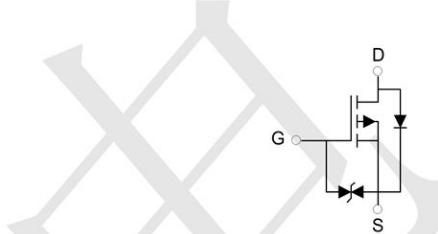
Marking: PA1

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DSS}	-20	V
Typical Gate-Source Voltage	V_{GS}	±12	
Drain Current-Continuous	I_D	-0.7	A
Drain Current -Pulsed(note1)	I_{DM}	-2.7	
Power Dissipation (note 2)	P_D	200	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	℃/W
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55 ~+150	℃

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

| Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
On/Off States						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250µA	-20			V
Gate-Threshold Voltage(note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250µA	-0.35	-0.45	- 1.1	
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0V, V_{GS} =±10V			±20	µA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-20V, V_{GS} =0V			-1	µA
Drain-Source On-State Resistance(note 3)	$R_{DS(on)}$	V_{GS} =-4.5V, I_D =-1A		430	520	mΩ
		V_{GS} =-2.5V, I_D =-800mA		624	700	
		V_{GS} =-1.8V, I_D =-500mA		950		
Forward Transconductance	g_{FS}	V_{DS} =-10V, I_D =-540mA	0.8			S
Dynamic Characteristics(note 4)						
Input Capacitance	C_{iss}	V_{DS} =-16V,V_{GS} =0V,f =1MHz			170	pF
Output Capacitance	C_{oss}				25	
Reverse Transfer Capacitance	C_{rss}				15	
Switching Times (note 4)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-10V, I_D=-200mA, V_{GS}=-4.5V,R_G=10Ω		9		ns
Rise Time	t_r			5.8		
Turn-Off Delay Time	$t_{d(off)}$			32.7		
Fall Time	t_f			20.3		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage (note 3)	V_{SD}	I_S=-0.5A, V_{GS} = 0V			-1.2	V

Characteristic Curves

Output Characteristics

V_{GS}=-4V,-5V
T_a=25℃
Pulsed
V_{GS}=-3V
V_{GS}=-2.5V
V_{GS}=-2V
V_{GS}=-1.5V

DRAIN CURRENT I_D (A)

DRAIN TO SOURCE VOLTAGE V_{DS} (V)
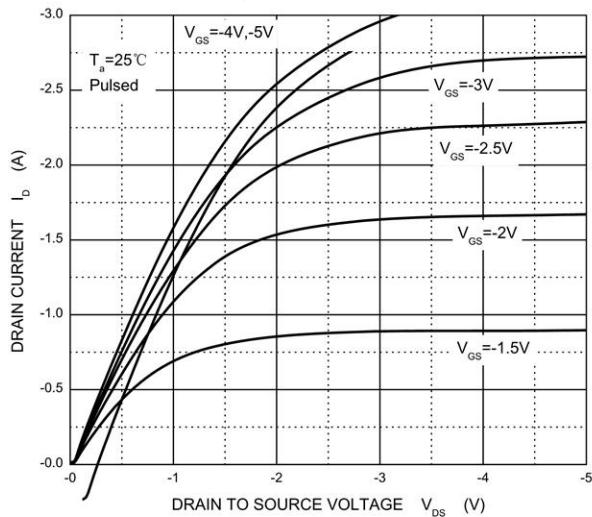
Transfer Characteristics
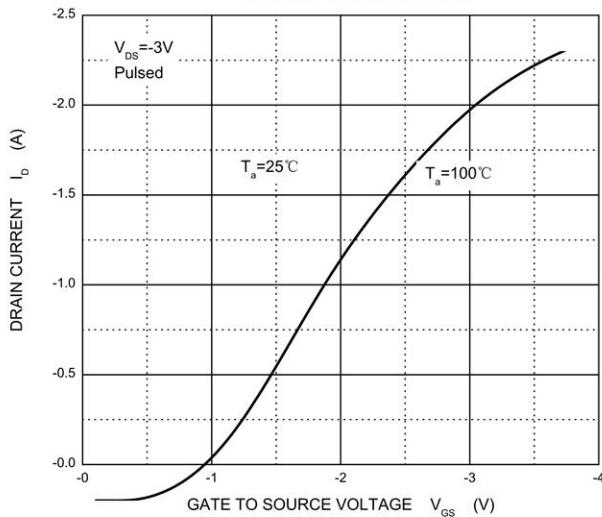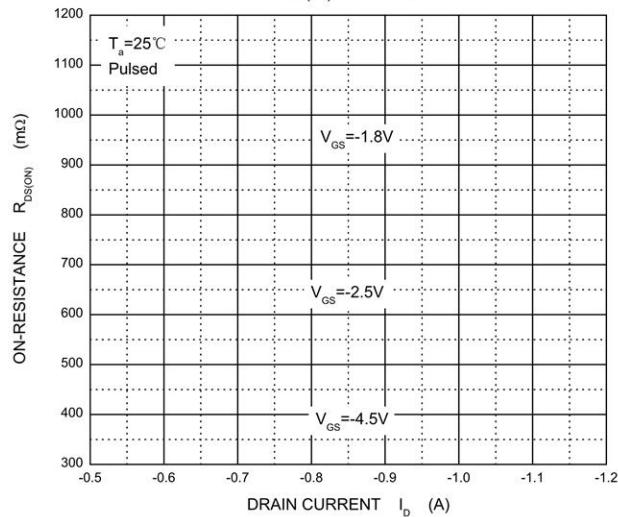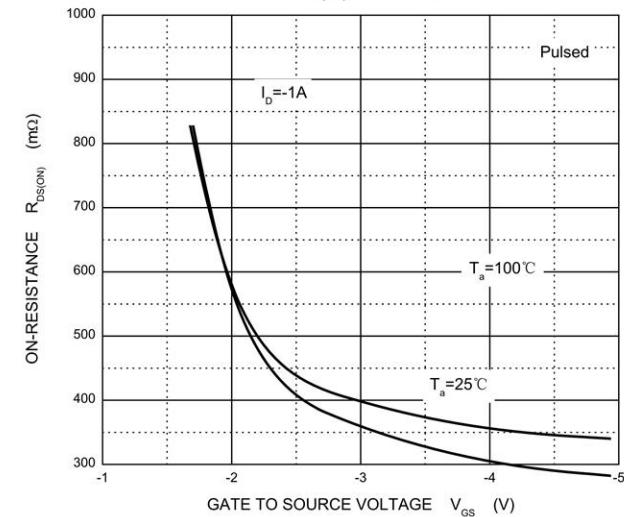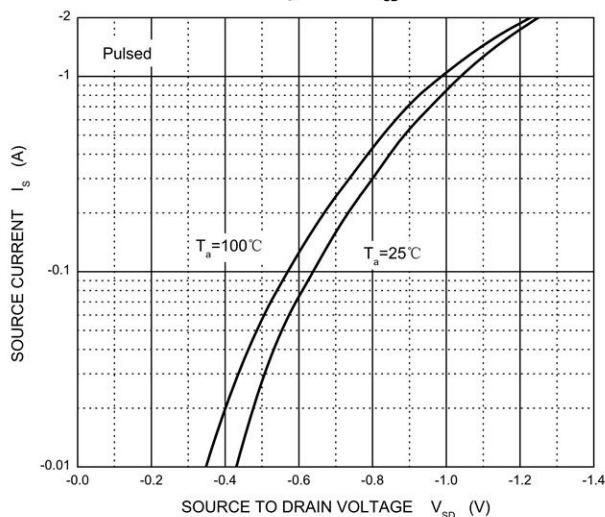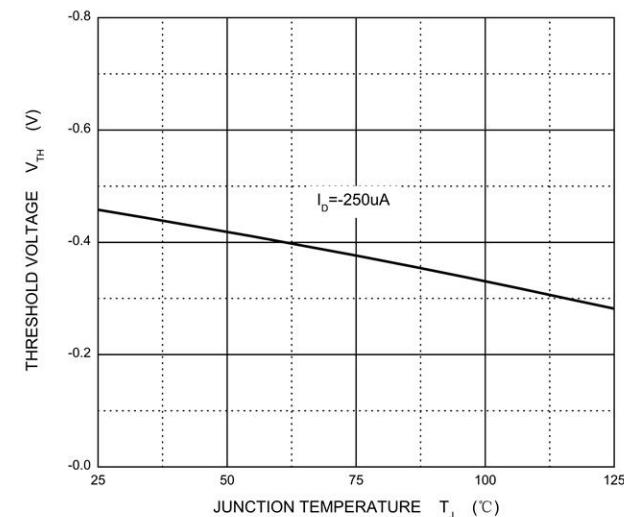
V_{DS}=-3V
Pulsed
T_a=25℃
T_a=100℃

DRAIN CURRENT I_D (A)

GATE TO SOURCE VOLTAGE V_{GS} (V)

$R_{DS(ON)}$ — I_D

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

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

DRAIN CURRENT I_D (A)

$R_{DS(ON)}$ — V_{GS}

Pulsed
I_D=-1A
T_a=100℃
T_a=25℃

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

GATE TO SOURCE VOLTAGE V_{GS} (V)

I_S — V_{SD}

Pulsed
T_a=100℃
T_a=25℃

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 (℃)

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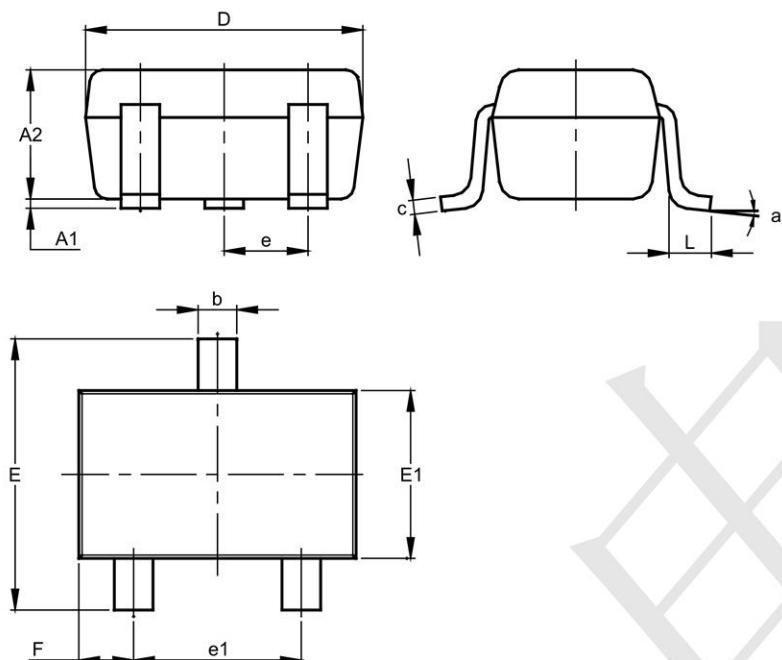
SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

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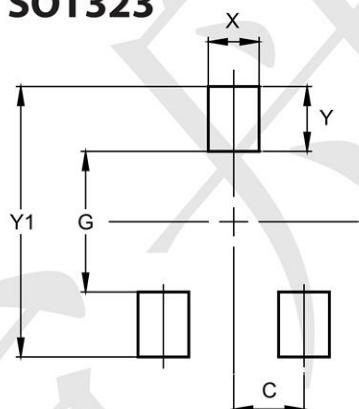
Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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