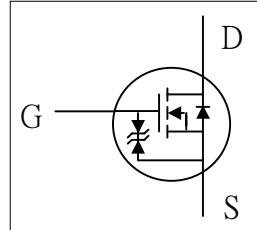


- ▼ Capable of 1.2V Low Gate Drive
- ▼ Lower Gate Charge
- ▼ Fast Switching Performance
- ▼ RoHS Compliant & Halogen-Free

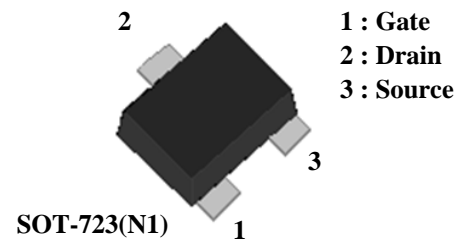


BV_{DSS}	20V
$R_{DS(ON)}$	1.2 Ω
I_D	200mA
HBM ESD	2KV

Description

XP2N1K2E series are innovated design and silicon process technology to achieve the lowest possible on-resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.

The SOT-723 Package with very small footprint is suitable for all commercial-industrial surface mount application.



Absolute Maximum Ratings @ $T_J=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 8	V
$I_D @ T_A=25^\circ\text{C}$	Drain Current ³ , V_{GS} @ 2.5V	200	mA
I_{DM}	Pulsed Drain Current ¹	400	mA
$I_S @ T_A=25^\circ\text{C}$	Source Current (Body Diode)	125	mA
I_{SM}	Pulsed Source Current ¹ (Body Diode)	800	mA
$P_D @ T_A=25^\circ\text{C}$	Total Power Dissipation	0.15	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	833	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =2.5V, I _D =200mA	-	-	1.2	Ω
		V _{GS} =1.8V, I _D =200mA	-	-	1.4	Ω
		V _{GS} =1.5V, I _D =40mA	-	-	2.4	Ω
		V _{GS} =1.2V, I _D =20mA	-	-	4.8	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =1mA	0.3	-	1	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =200mA	-	1.8	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =16V, V _{GS} =0V	-	-	10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±8V, V _{DS} =0V	-	-	±30	uA
Q _g	Total Gate Charge	I _D =200mA	-	0.7	-	nC
Q _{gs}	Gate-Source Charge	V _{DS} =10V	-	0.2	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =2.5V	-	0.2	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =10V	-	2	-	ns
t _r	Rise Time	I _D =150mA	-	10	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =10Ω	-	30	-	ns
t _f	Fall Time	V _{GS} =5V	-	16	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	44	-	pF
C _{oss}	Output Capacitance	V _{DS} =10V	-	14	-	pF
C _{riss}	Reverse Transfer Capacitance	f=1.0MHz	-	10	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =0.13A, V _{GS} =0V	-	-	1.2	V

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on min. copper pad of FR4 board

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

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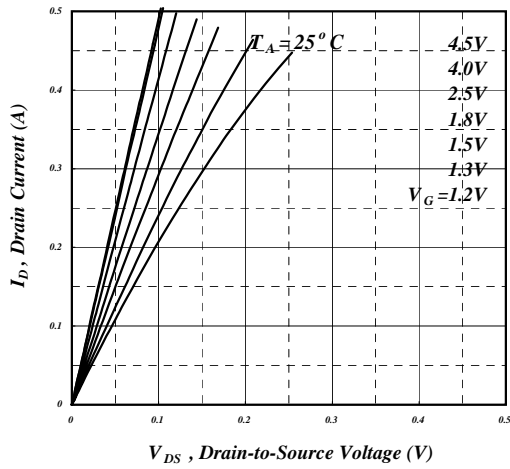


Fig 1. Typical Output Characteristics

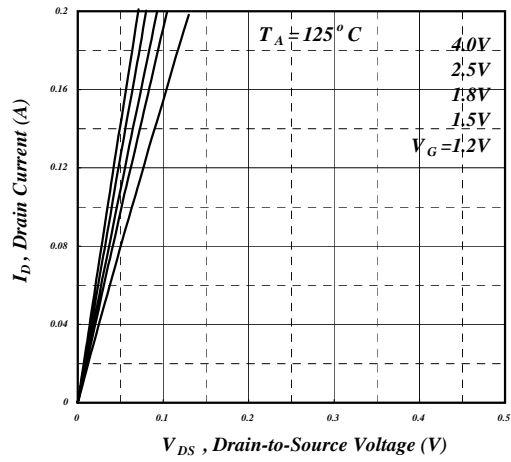


Fig 2. Typical Output Characteristics

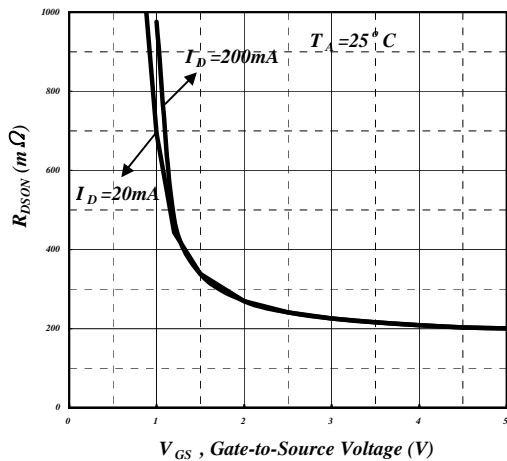


Fig 3. On-Resistance v.s. Gate Voltage

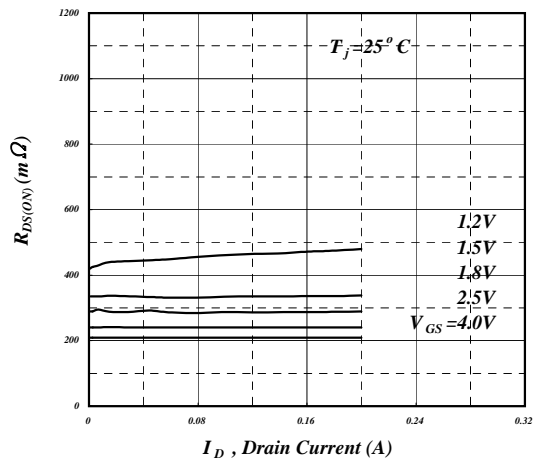


Fig 4. Typ. Drain-Source on State Resistance

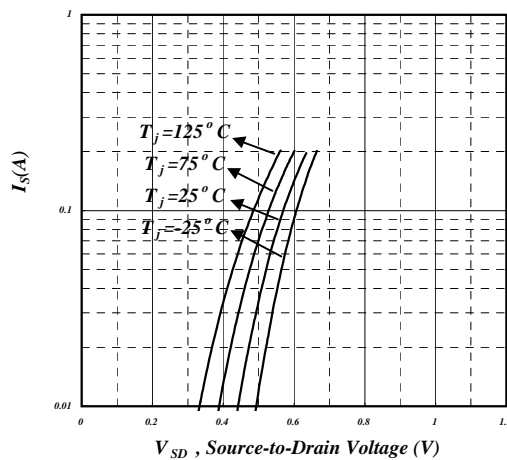


Fig 5. Forward Characteristic of Reverse Diode

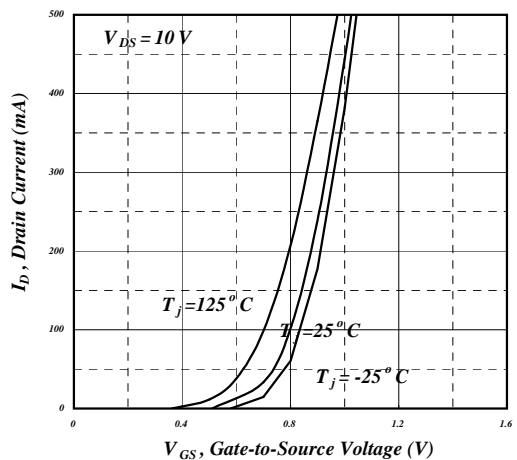


Fig 6. Transfer Characteristics

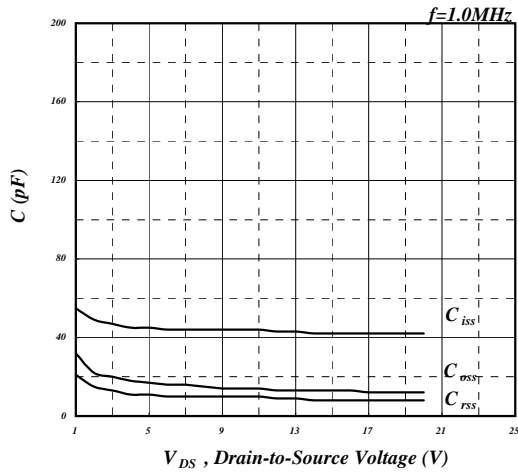


Fig 7. Typical Capacitance Characteristics

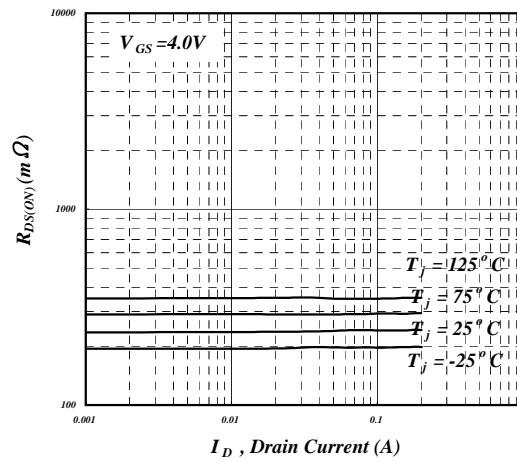


Fig 8. Static Drain-Source On-State Resistance vs. Drain Current

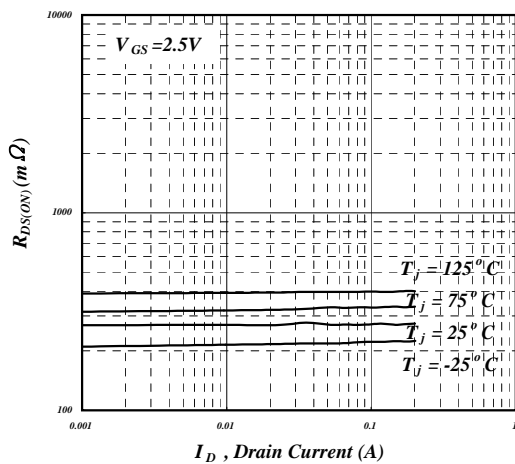


Fig 9. Static Drain-Source On-State Resistance vs. Drain Current

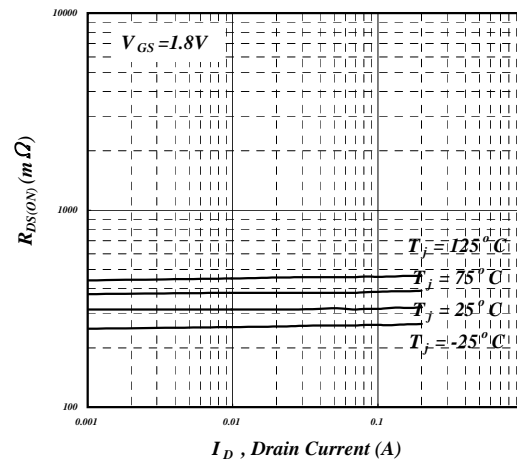


Fig 10. Static Drain-Source On-State Resistance vs. Drain Current

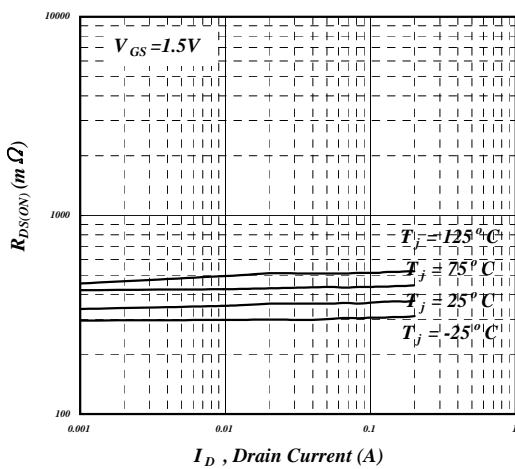


Fig 11. Static Drain-Source On-State Resistance vs. Drain Current

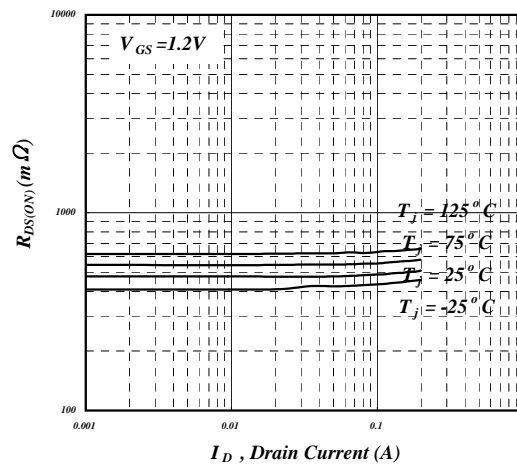
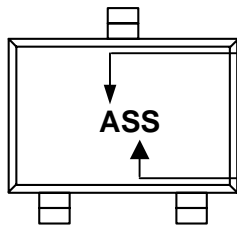


Fig 12. Static Drain-Source On-State Resistance vs. Drain Current

MARKING INFORMATION



Part Number : A

Date Code : SS

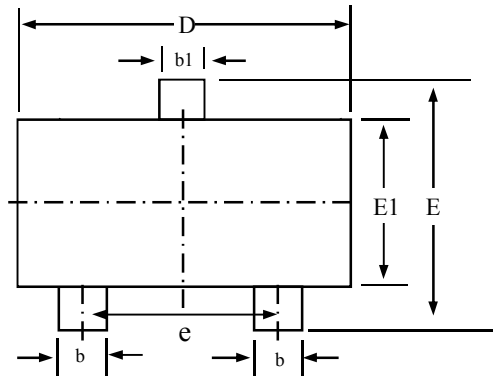
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SS:2003,2007,2011,2015,2019,2023...

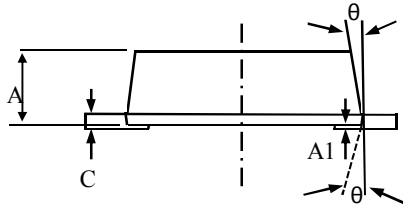
SS:2002,2006,2010,2014,2018,2022...

SS:2001,2005,2009,2013,2017,2021...

Package Outline : SOT-723

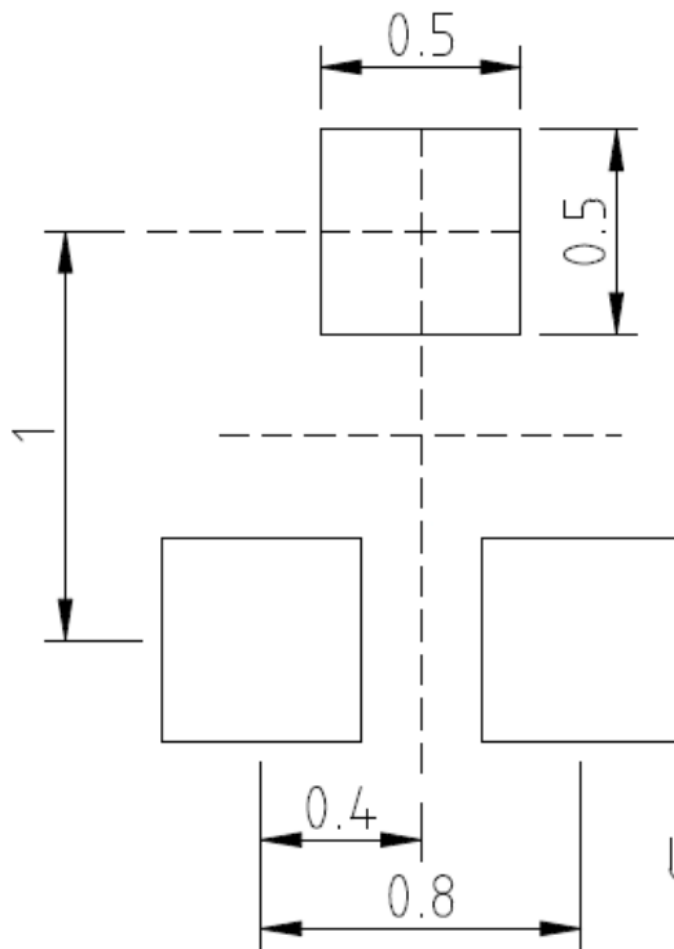


SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	0.34	0.44	0.54
A1	0.00	0.03	0.05
b	0.17	0.22	0.27
b1	0.22	0.30	0.37
c	0.01	0.08	0.15
D	1.10	1.20	1.30
E	1.10	1.20	1.30
E1	0.70	0.80	0.90
e	0.80 (Typ)		
θ	7° (ref.)		



- 1.All Dimension Are In Millimeters.
- 2.Dimension Does Not Include Mold Protrusions.

SOT-723 FOOTPRINT :



UNIT: mm