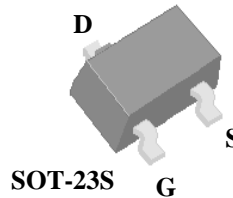
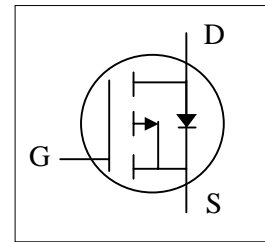




- ▼ Capable of 2.5V Gate Drive
- ▼ Small Package Outline
- ▼ Surface Mount Device
- ▼ RoHS Compliant & Halogen-Free



BV_{DSS}	-20V
$R_{DS(ON)}$	65m Ω
I_D^3	-4.2A



Description

AP2P053 series are from Advanced Power 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-23S package is widely preferred for commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

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	± 12	V
$I_D @ T_A=25^\circ\text{C}$	Drain Current ³ , V_{GS} @ 4.5V	-4.2	A
$I_D @ T_A=70^\circ\text{C}$	Drain Current ³ , V_{GS} @ 4.5V	-3.4	A
I_{DM}	Pulsed Drain Current ¹	-16	A
$P_D @ T_A=25^\circ\text{C}$	Total Power Dissipation ³	1.25	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	100	$^\circ\text{C}/\text{W}$



AP2P053N

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} =-10V, I _D =-4.5A	-	-	53	mΩ
		V _{GS} =-4.5V, I _D =-4A	-	-	65	mΩ
		V _{GS} =-2.5V, I _D =-2A	-	-	100	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.5	-	-1.2	V
g _{fs}	Forward Transconductance	V _{DS} =-5V, I _D =-3A	-	9	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-16V, V _{GS} =0V	-	-	-10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} = ±12V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge	I _D =-3A	-	10	16	nC
Q _{gs}	Gate-Source Charge	V _{DS} =-10V	-	2	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =-4.5V	-	2	-	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-10V	-	8	-	ns
t _r	Rise Time	I _D =-1A	-	12	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	24	-	ns
t _f	Fall Time	V _{GS} =-5V	-	38	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	1000	1600	pF
C _{oss}	Output Capacitance	V _{DS} =-10V	-	120	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	90	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =-1A, V _{GS} =0V	-	-	-1.2	V
t _{rr}	Reverse Recovery Time	I _S =-3A, V _{GS} =0V,	-	12	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	4	-	nC

Notes:

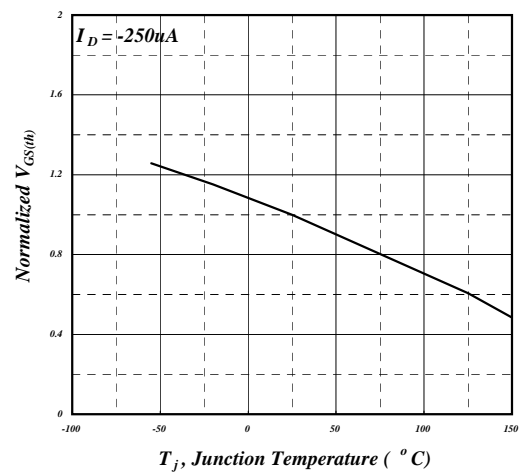
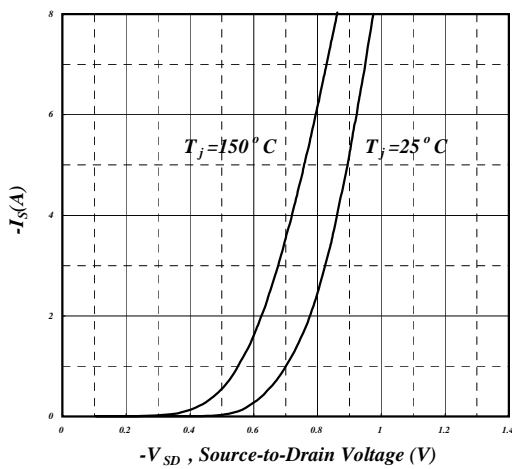
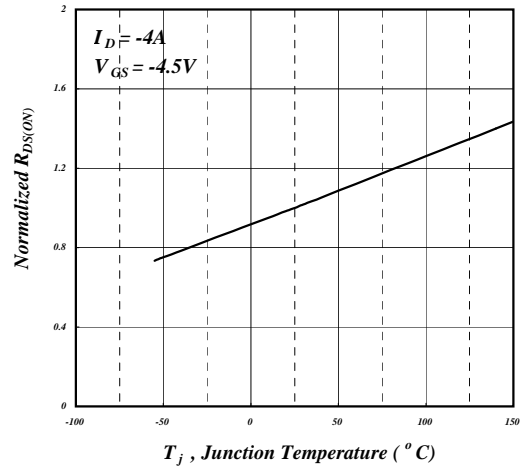
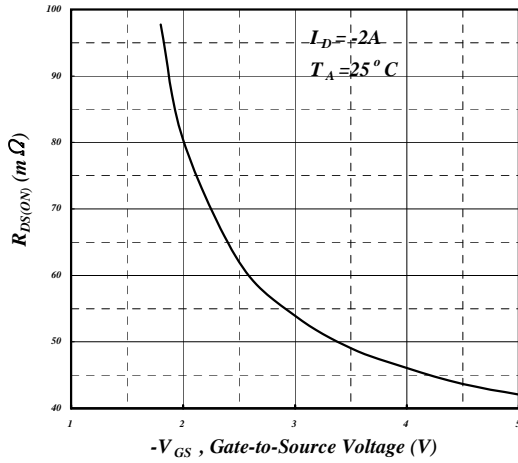
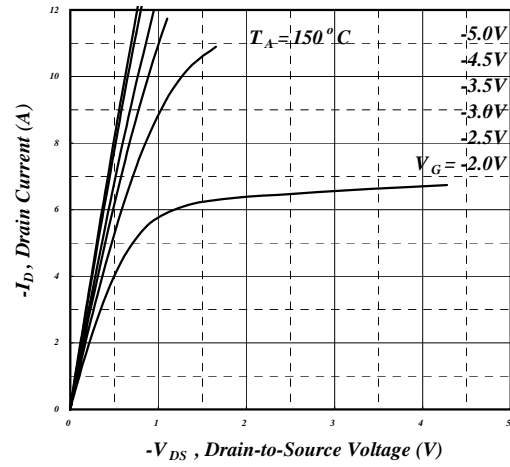
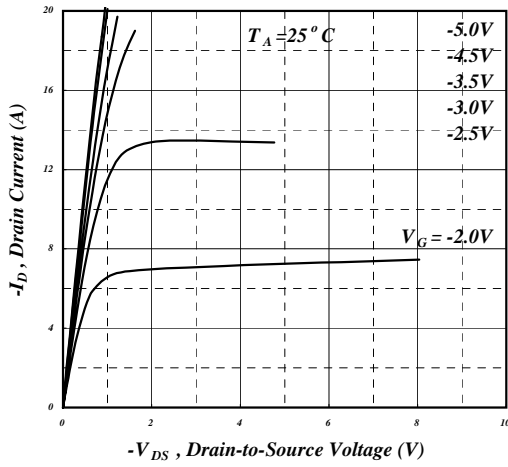
- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board, t ≤ 10s ; 300°C/W when mounted on min. copper pad.

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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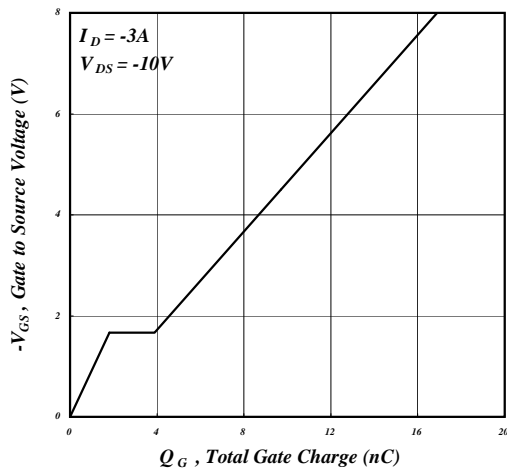


Fig 7. Gate Charge Characteristics

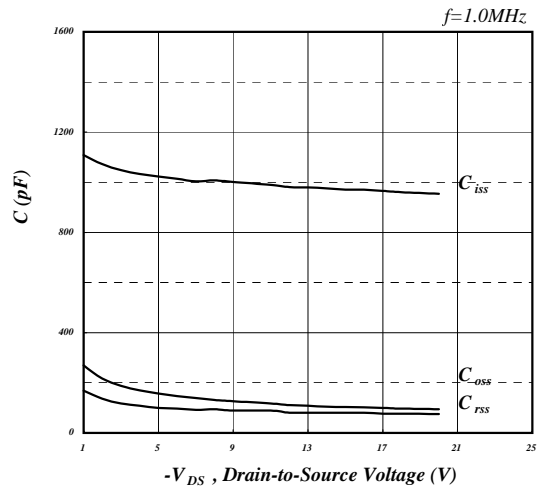


Fig 8. Typical Capacitance Characteristics

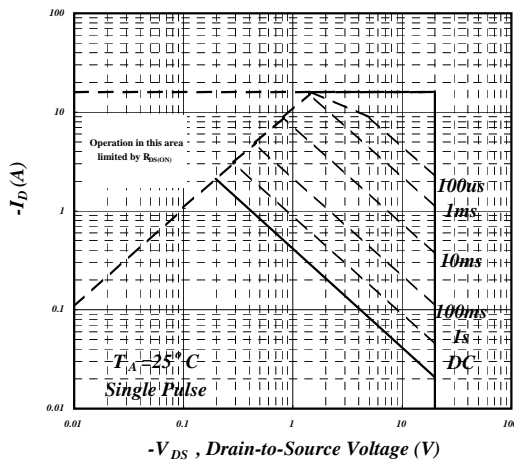


Fig 9. Maximum Safe Operating Area

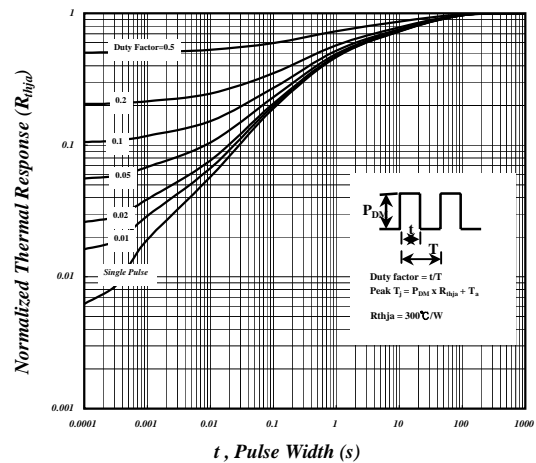


Fig 10. Effective Transient Thermal Impedance

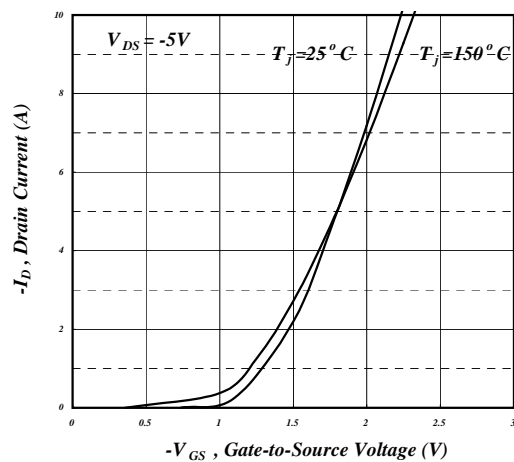


Fig 11. Transfer Characteristics

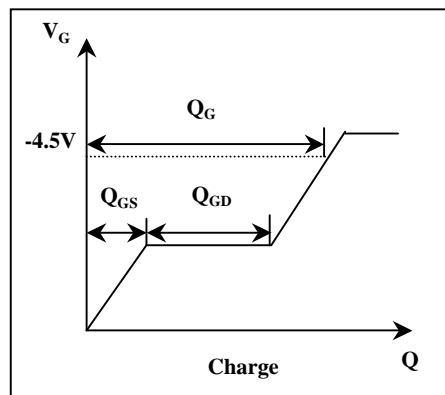


Fig 12. Gate Charge Waveform

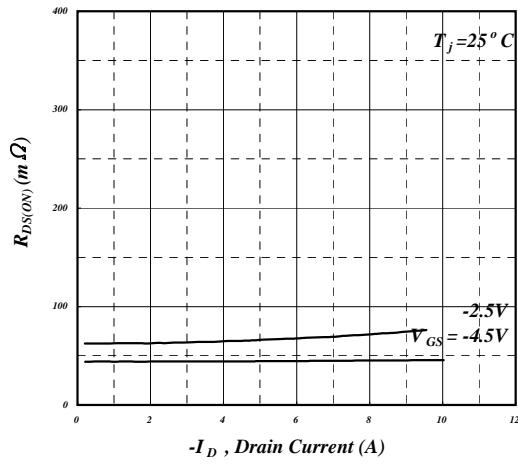


Fig 13. Typ. Drain-Source on State Resistance

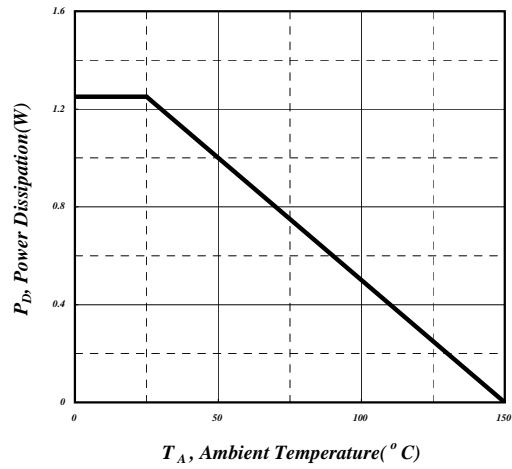
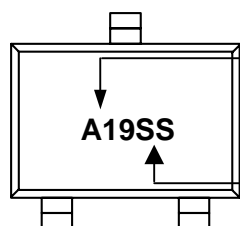


Fig 14. Total Power Dissipation



AP2P053N

MARKING INFORMATION



Part Number : A19

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