



**Advanced Power
Electronics Corp.**

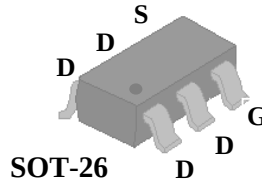
AP2602GY

Pb Free Plating Product

N-CHANNEL ENHANCEMENT MODE

POWER MOSFET

- ▼ Capable of 2.5V gate drive
- ▼ Lower on-resistance
- ▼ Surface mount package
- ▼ RoHS Compliant

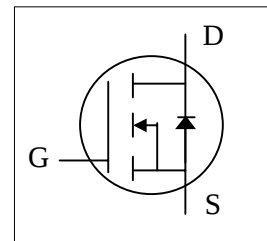


BV_{DSS}	20V
$R_{DS(ON)}$	34m Ω
I_D	6.3A

Description

Advanced Power MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The SOT-26 package is universally used for all commercial-industrial applications.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current ³ , V_{GS} @ 4.5V	6.3	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current ³ , V_{GS} @ 4.5V	5	A
I_{DM}	Pulsed Drain Current ^{1,2}	30	A
$P_D @ T_A = 25^\circ\text{C}$	Total Power Dissipation	2	W
	Linear Derating Factor	0.016	W/ $^\circ\text{C}$
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	Thermal Resistance Junction-ambient ³ Max.	62.5	$^\circ\text{C}/\text{W}$



AP2602GY

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
ΔBV _{DSS} /ΔT _j	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D =1mA	-	0.1	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =5.5A	-	-	30	mΩ
		V _{GS} =4.5V, I _D =5.3A	-	-	34	mΩ
		V _{GS} =2.5V, I _D =2.6A	-	-	50	mΩ
		V _{GS} =1.8V, I _D =1.0A	-	-	90	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.5	-	-	V
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =5.3A	-	13	-	S
I _{DSS}	Drain-Source Leakage Current (T _j =25°C)	V _{DS} =20V, V _{GS} =0V	-	-	1	uA
	Drain-Source Leakage Current (T _j =55°C)	V _{DS} =16V, V _{GS} =0V	-	-	10	uA
I _{GSS}	Gate-Source Leakage	V _{GS} = ± 12V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =5.3A	-	8.7	16	nC
Q _{gs}	Gate-Source Charge	V _{DS} =10V	-	1.5	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	3.6	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =15V	-	6	-	ns
t _r	Rise Time	I _D =1A	-	14	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =2Ω, V _{GS} =10V	-	18.4	-	ns
t _f	Fall Time	R _D =15Ω	-	2.8	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	603	1085	pF
C _{oss}	Output Capacitance	V _{DS} =15V	-	144	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	111	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =1.2A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time ²	I _S =5A, V _{GS} =0V,	-	16.8	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	11	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse width ≤300us , duty cycle ≤2%.
- 3.Surface mounted on 1 in² copper pad of FR4 board ; 156°C/W when mounted on min. copper pad.

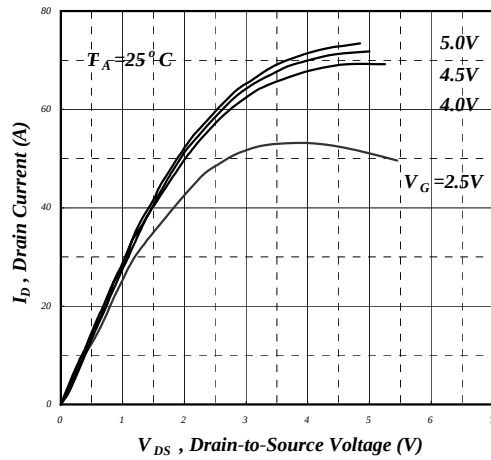


Fig 1. Typical Output Characteristics

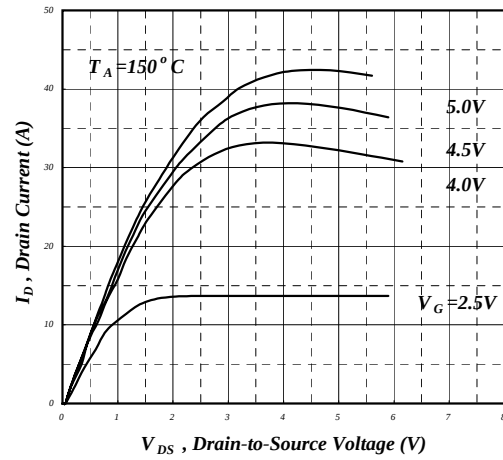


Fig 2. Typical Output Characteristics

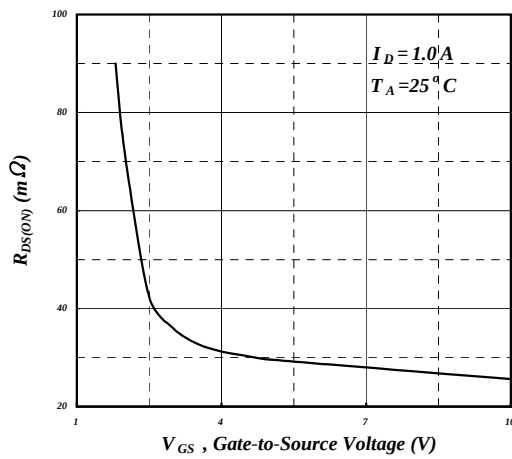


Fig 3. On-Resistance v.s. Gate Voltage

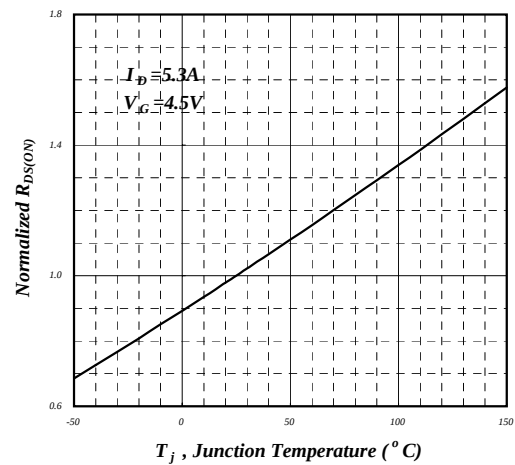


Fig 4. Normalized On-Resistance v.s. Junction Temperature

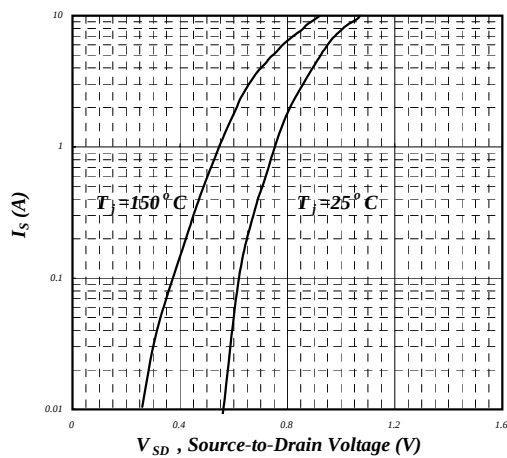


Fig 5. Forward Characteristic of Reverse Diode

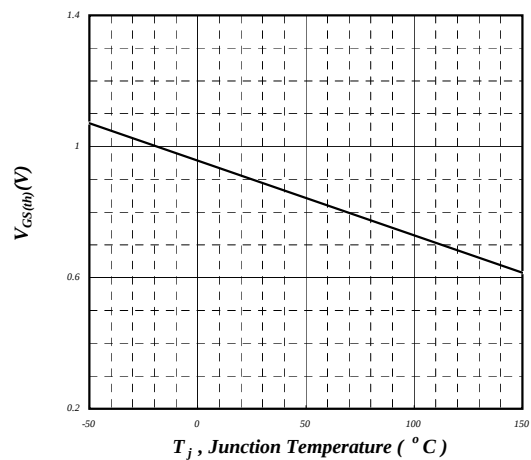


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

