

• General Description

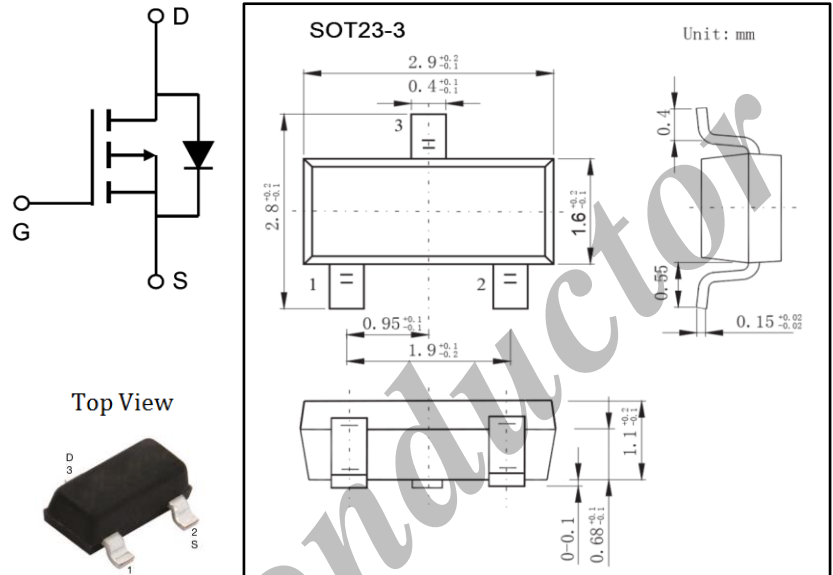
AP2303B combines advanced MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is most suitable to load switch or PWM applications.

• Applications

- DC-DC converter for portable devices
- Load switch

• Product Summary

V_{DS}	30V
I_D (at $V_{GS} = -10V$)	-1.4A
$R_{DS(ON)}$ (at $V_{GS} = -10V$)	< 200m Ω
$R_{DS(ON)}$ (at $V_{GS} = -4.5V$)	< 380m Ω



• Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_j = 150^\circ C$) (Surface Mounted on FR4 Board)	I_D	$T_a = 25^\circ C$	-1.7
		$T_a = 70^\circ C$	-1.4
Pulsed Drain Current (Pulse width limited by maximum junction temperature)	I_{DM}	-10	A
Power Dissipation	P_D	$T_a = 25^\circ C$	1.25
		$T_a = 70^\circ C$	0.8
Junction and Storage Temperature Range	T_j, T_{STG}	-55 to 150	$^\circ C$
Thermal Characteristics			
Thermal Resistance, Junction-to-Ambient (Surface Mounted on FR4 Board)	$R_{\theta JA}$	$t \leq 5s$	100
		Steady State	166

• **Electrical Characteristics Ta = 25°C**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	V_{DSS}	$I_D = -250\mu A, V_{GS} = 0V$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -30V, V_{GS} = 0V, T_j = 55^\circ C$			-10	
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0		-3.0	V
On-State Drain Current (** Note a)	$I_{D(on)}$	$V_{DS} \leq -5V, V_{GS} = -10V$	-6			A
Static Drain-Source On-Resistance (** Note a)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -1.7A$			200	m Ω
		$V_{GS} = -4.5V, I_D = -1.3A$			380	
Forward Transconductance (** Note a)	g_{FS}	$V_{DS} = -10V, I_D = -1.7A$		2.4		S
Diode Forward Voltage	V_{SD}	$I_S = -1.25A, V_{GS} = 0V$		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-1.25	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$ (** Note b)		226		pF
Output Capacitance	C_{oss}			87		
Reverse Transfer Capacitance	C_{rss}			19		
Switching Parameters						
Total Gate Charge (4.5V)	Q_g	$V_{DS} = -15V, V_{GS} = -10V, I_D = -1.7A$ (** Note b)		5.8	10	nC
Gate Source Charge	Q_{gs}			0.8		
Gate Drain Charge	Q_{gd}			1.5		
Turn-On Delay Time	$t_{D(on)}$	$V_{DD} = -15V, R_L = 15\Omega,$ $I_D = -1A, V_{GEN} = -10V, R_{GEN} = 6\Omega,$ (** Note c)		9	20	ns
Turn-On Rise Time	t_r			9	20	
Turn-Off Delay Time	$t_{D(off)}$			18	35	
Turn-Off Fall Time	t_f			6	20	

Notes

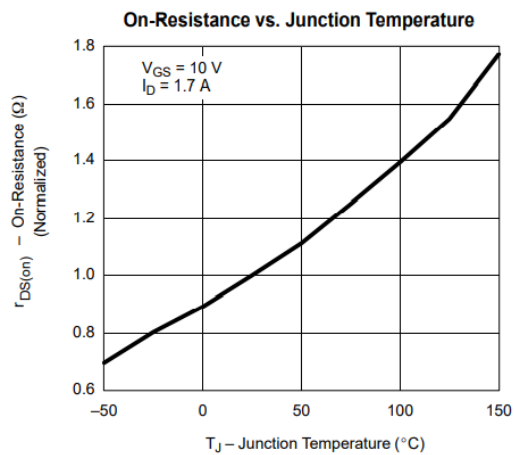
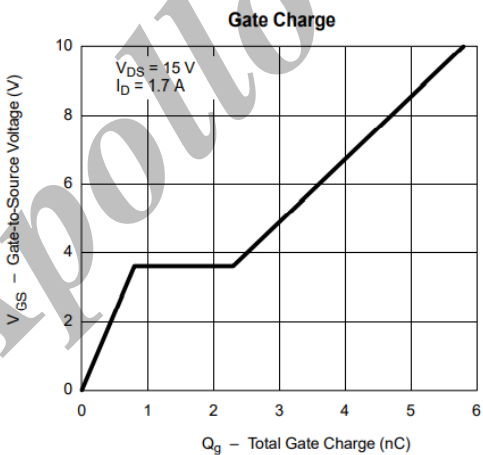
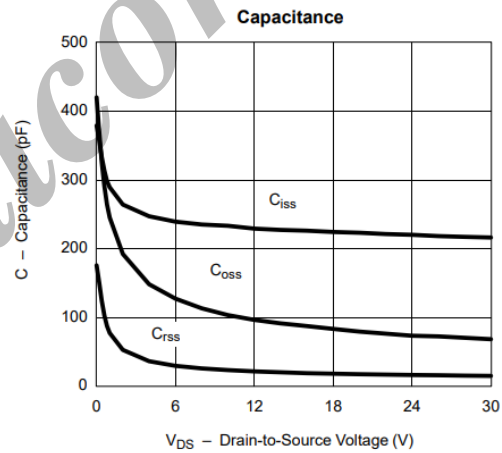
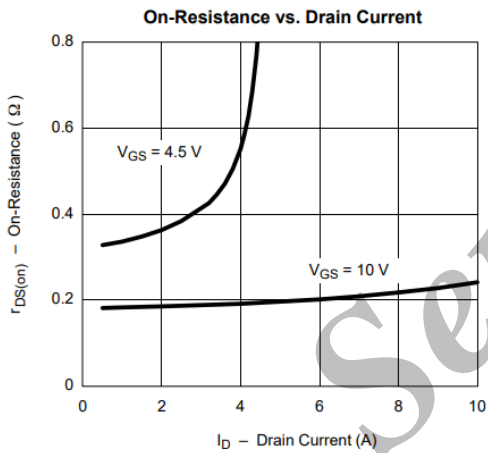
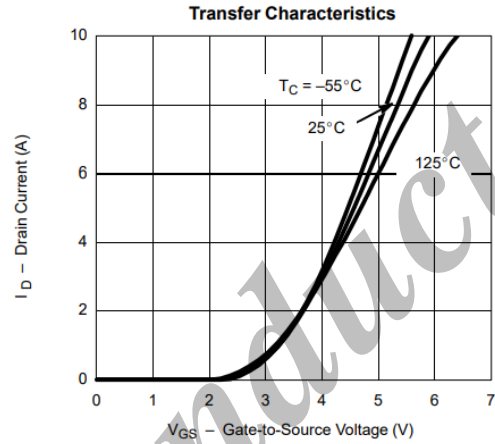
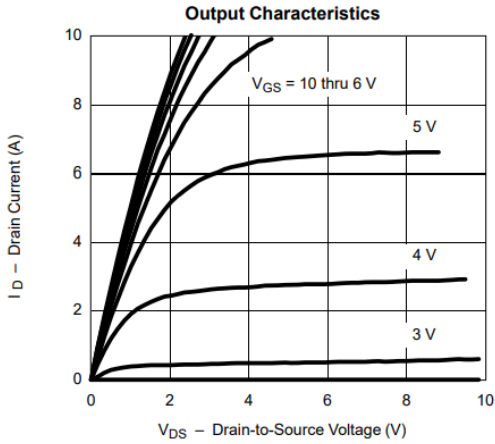
- Pulse test: $PW \leq 300\mu s$, duty cycle $\leq 2\%$.
- For DESIGN AID ONLY, not subject to production testing.
- Switching time is essentially independent of operating temperature.

• **Ordering Information**

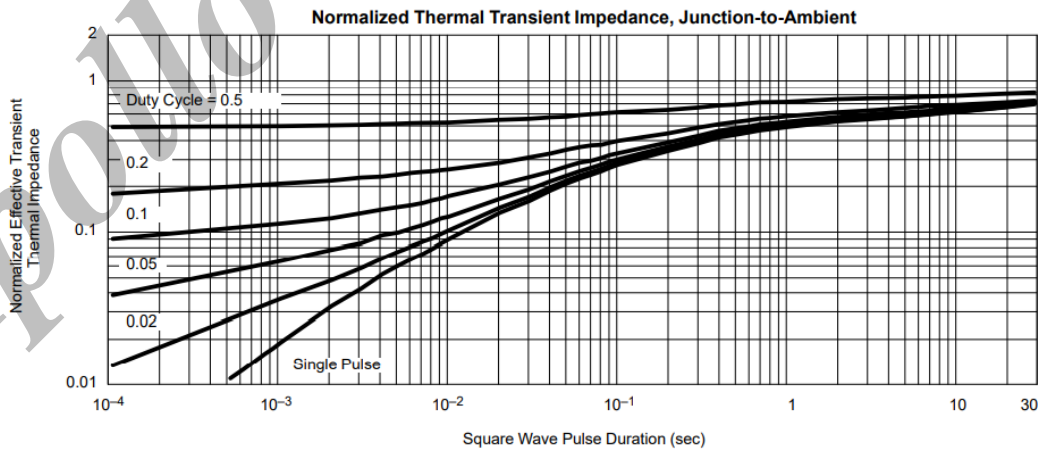
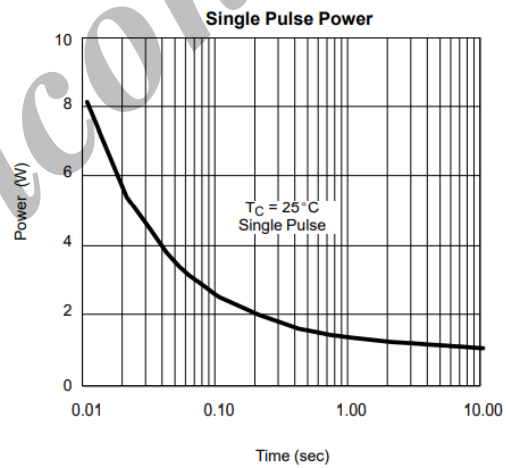
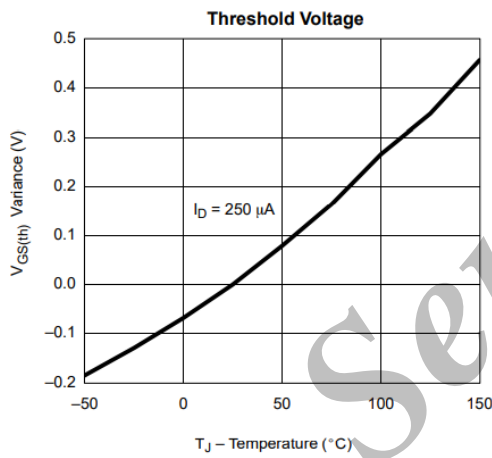
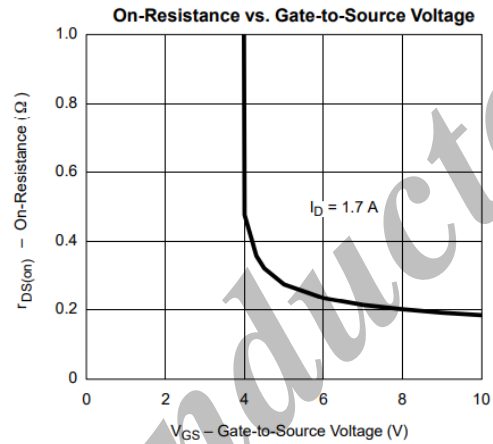
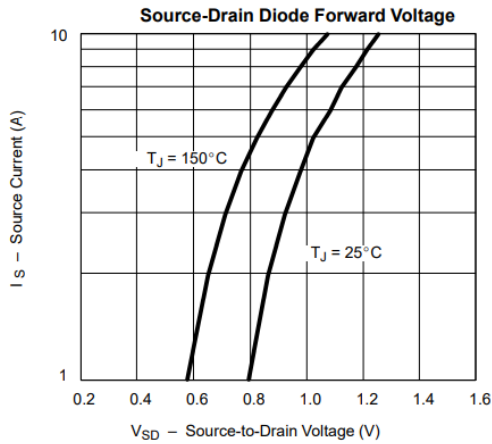
Ordering Part Number	Package	MOQ
AP2303B	SOT23-3	3,000 pcs / reel

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• Typical Electrical and Thermal Characteristics



• Typical Electrical and Thermal Characteristics



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