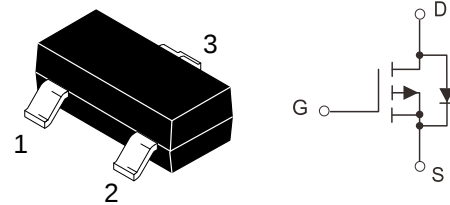


-20V/-4.1A P-Channel Advanced Power MOSFET

Product Summary

BVDSS	-20	V
ID	-4.1	A
RDSON@VGS=-4.5V	30.0	mΩ
RDSON@VGS=-2.5V	38.0	mΩ

SOT-23


Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance

Application

- DC/DC Converter
- Power Management

Order Information

Product	Package	Marking	Reel
M02P041DD	SOT-23	2305A	3000PCS

Absolute Maximum Ratings($T_a=25^{\circ}\text{C}$)

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	-4.1	A
I_{DM}	Pulsed Drain Current	-16	A
I_S	Continuous Source-Drain Current(Diode Conduction)	-4.0	A
P_D	Power Dissipation	1	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient ($t \leq 5s$)	125	$^{\circ}\text{C}/\text{W}$
T_J, T_{stg}	Operation Junction And Storage Temperature Range	-55~+150	$^{\circ}\text{C}$

-20V/-4.1A P-Channel Advanced Power MOSFET

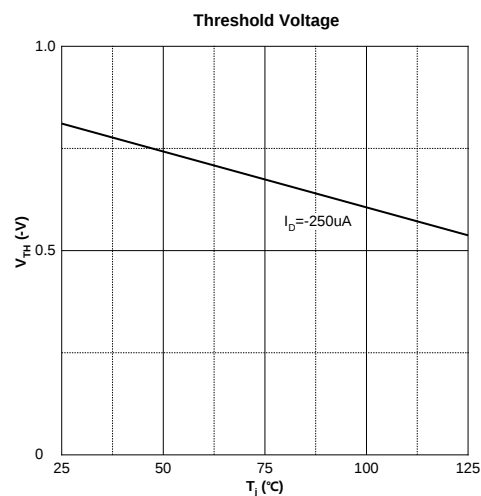
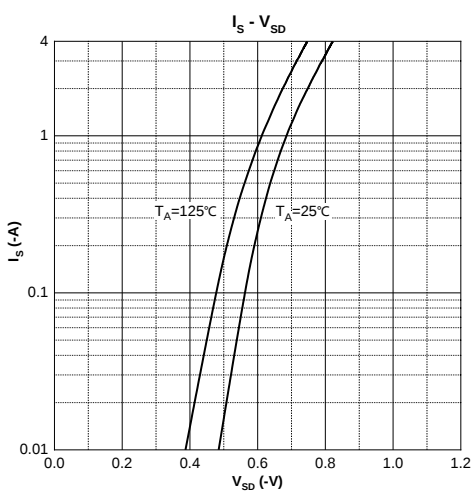
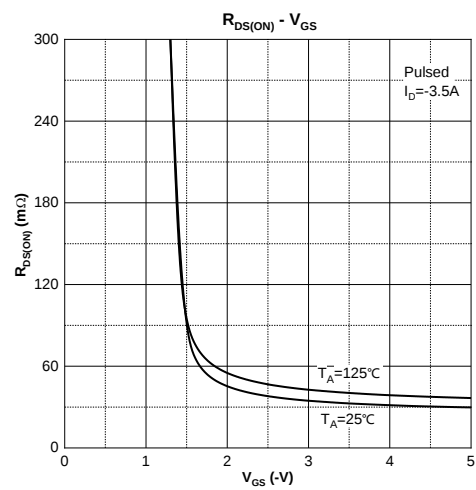
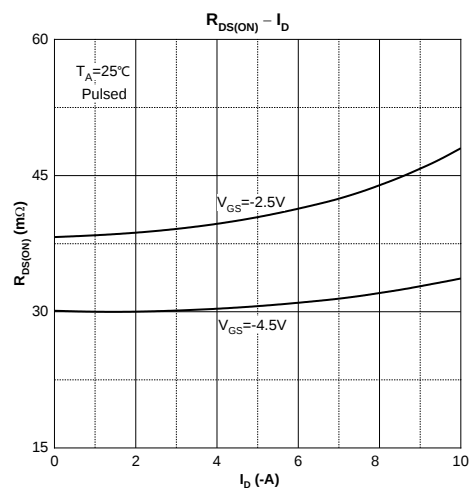
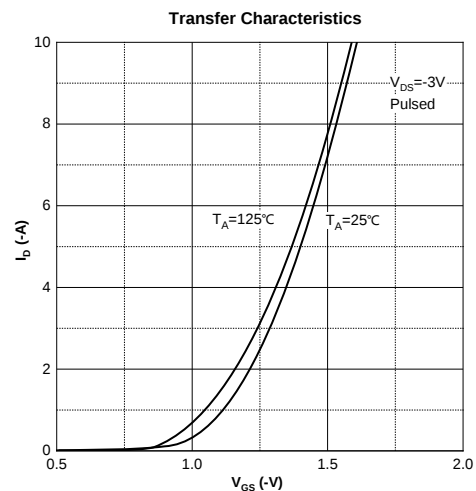
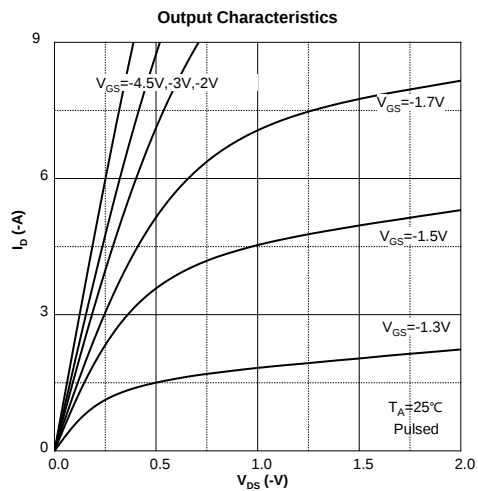
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} = 0V,	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±12V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.7	-1.0	V
R _{DS(on)}	Static Drain-Source on-Resistance note2	V _{GS} =-4.5V, I _D =-4.1A	-	30	38	mΩ
		V _{GS} =-2.5V, I _D =-3A	-	38	53	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = -10V, V _{GS} = 0V, f = 1.0MHz	-	830	-	pF
C _{oss}	Output Capacitance		-	132	-	pF
C _{rss}	Reverse Transfer Capacitance		-	85	-	pF
Q _g	Total Gate Charge	V _{DS} = -10V, I _D = -5A, V _{GS} = -4.5V	-	7.2	-	nC
Q _{gs}	Gate-Source Charge		-	1.2	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1.6	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} = -10V, I _D = -5A, R _G = 1Ω, V _{GEN} =-4.5V, R _L =1.2Ω	-	15	-	ns
t _r	Turn-on Rise Time		-	63	-	ns
t _{d(off)}	Turn-off Delay Time		-	21	-	ns
t _f	Turn-off Fall Time		-	12	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-4.1	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-16	A
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _S = -4.1A	-	-	1.2	V
t _{rr}	Reverse Recovery Time	V _{GS} =0V, I _S =-4.1A, di/dt=100A/μs	-	20	-	ns
Q _{rr}	Reverse Recovery Charge		-	9	-	nC

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

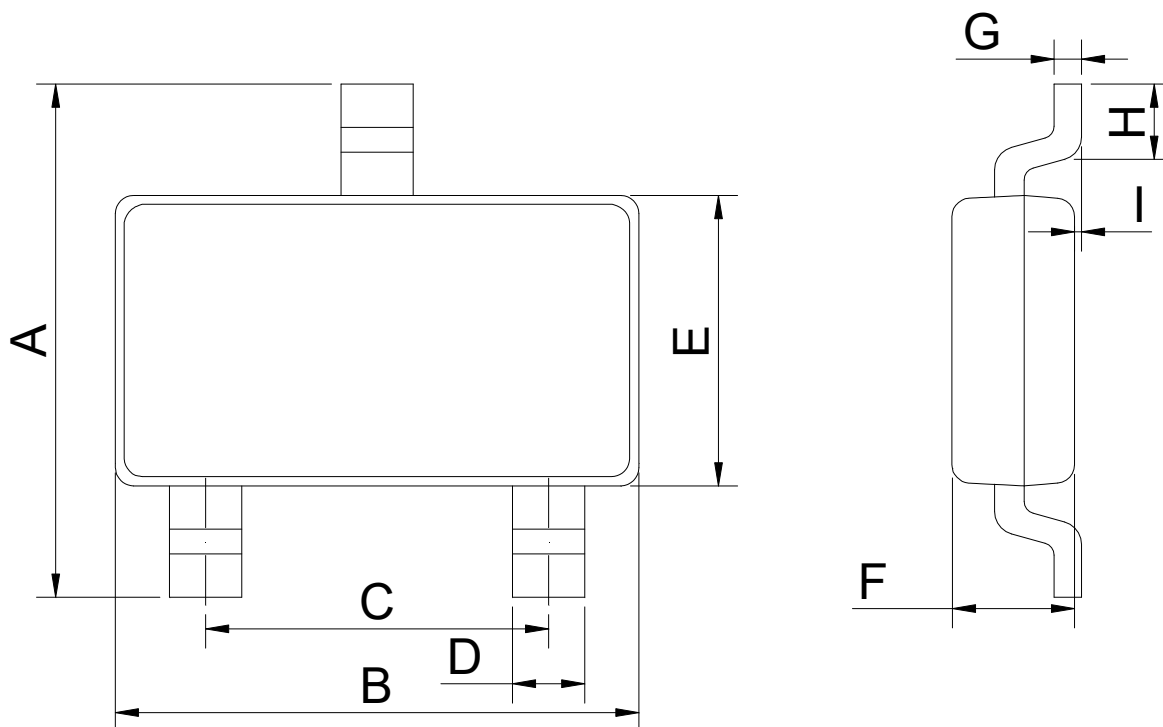
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

-20V/-4.1A P-Channel Advanced Power MOSFET



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SOT-23 Package Outline Dimensions



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.30	2.40	2.50	0.091	0.095	0.098
B	2.80	2.90	3.00	0.110	0.114	0.118
C	1.90 REF			0.075 REF		
D	0.35	0.40	0.45	0.014	0.016	0.018
E	1.20	1.30	1.40	0.047	0.051	0.055
F	0.90	1.00	1.10	0.035	0.039	0.043
G		0.10	0.15		0.004	0.006
H	0.20			0.008		
I	0		0.10	0		0.004