

20V P-Channel Power MOSFET

UM8517PP SOT323

General Description

The UM8517PP are low threshold P-channel MOSFETs, having extremely low on-resistance. This benefit provides the designer with an extremely efficient device for use in battery and load management applications. The UM8517PP uses a space-saving, small-outline SOT323 package.

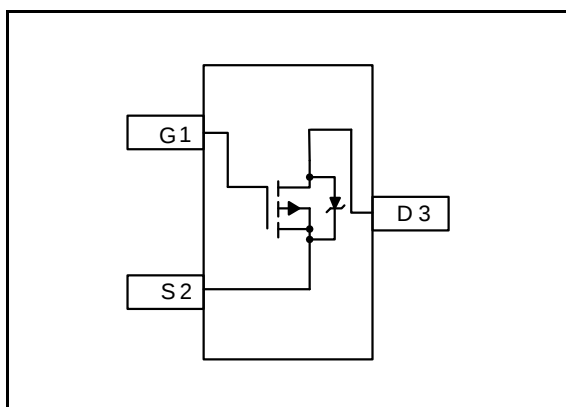
Applications

- Battery Packs
- Battery-Powered Portable Equipments
- Cellular and Cordless Telephones

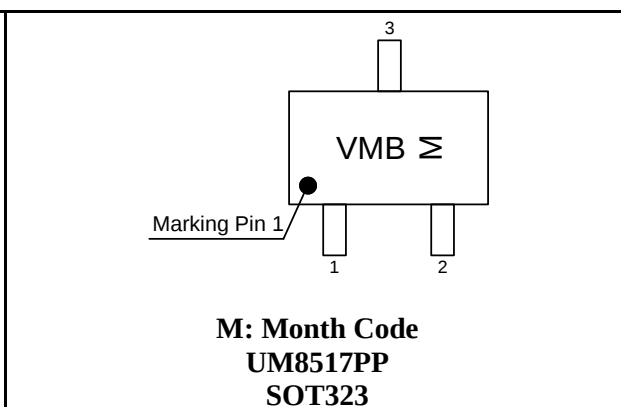
Features

- Drain-Source Voltage (Max): -20V
- Low On-Resistance:
90mΩ@V_{GS}=-4.5V
130mΩ@V_{GS}=-2.5V
- Continuous Drain Current (Max):
-1.4A@25 °C

Pin Configurations



Top View



Ordering Information

Part Number	Packaging Type	Marking Code	Shipping Qty
UM8517PP	SOT323	VMB	3000pcs/7 Inch Tape & Reel

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	-1.4	A
I_{DM}	Drain Current Pulsed	-3.0	A
P_D	Power Dissipation	0.3	W
T_J	Junction Temperature	-55~150	℃
T_{STG}	Storage Temperature	-55~150	℃
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	330	℃/W

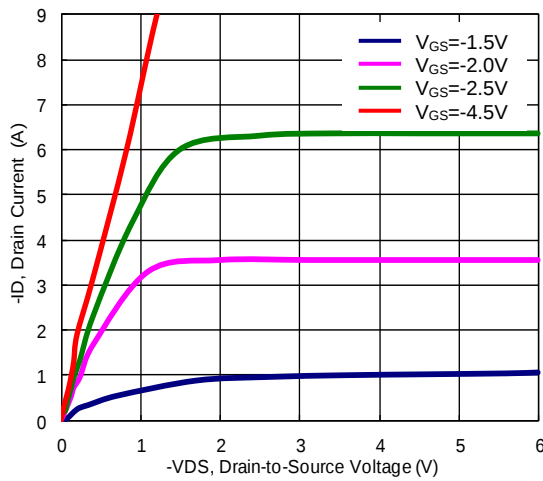
Electrical Characteristics

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

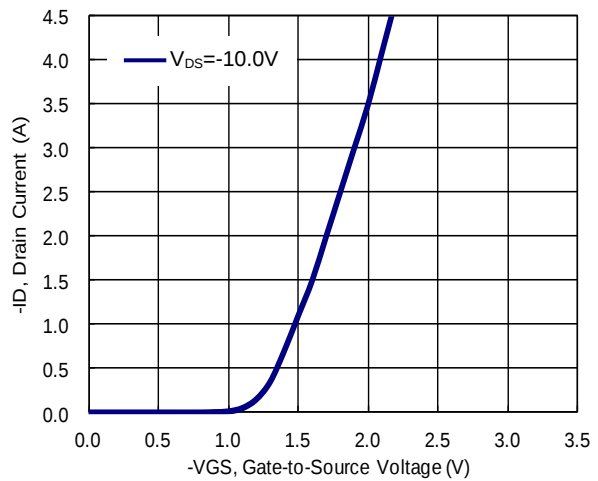
Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
Off Characteristics						
BV _{DSS}	Drain to Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V			-1	μA
I _{GSS}	Gate-to-Source Leakage Current	V _{GS} = ±12V, V _{DS} =0V			±100	nA
On Characteristics						
R _{DS(ON)}	Static Drain-to-Source On-Resistance	V _{GS} =-4.5V, I _D =-1.0A		90	110	mΩ
		V _{GS} =-2.5V, I _D =-0.5A		130	150	
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =-250μA	-0.4	-0.7	-1	V
g _{fs}	Forward Transconductance	V _{DS} =-5V, I _D =-2.0A		6		S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-15V, f=1.0MHz		405		pF
C _{oss}	Output Capacitance			75		
C _{rss}	Reverse Transfer Capacitance			55		
Switching Characteristics						
Q _{g(TH)}	Threshold Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-1.0A		3.3		nC
Q _{GS}	Gate-Source Charge			0.7		
Q _{GD}	Gate-Drain Charge			1.3		
td(on)	Turn-on Delay Time	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-1.0A R _{GEN} =10Ω		11		ns
tr	Rise Time			35		
td(off)	Turn-off Delay Time			30		
tf	Fall Time			10		
Drain-Source Diode Characteristics and Maximum Ratings						
V _{SD}	Forward Diode Voltage	V _{GS} =0V, I _S =-1A		-0.7	-1.2	V

Typical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

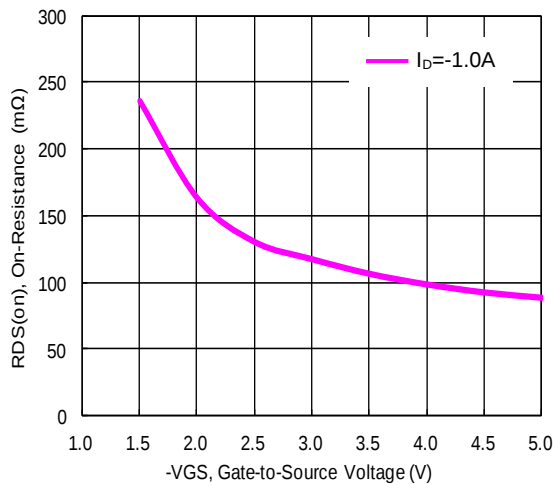
Typical Output Characteristics



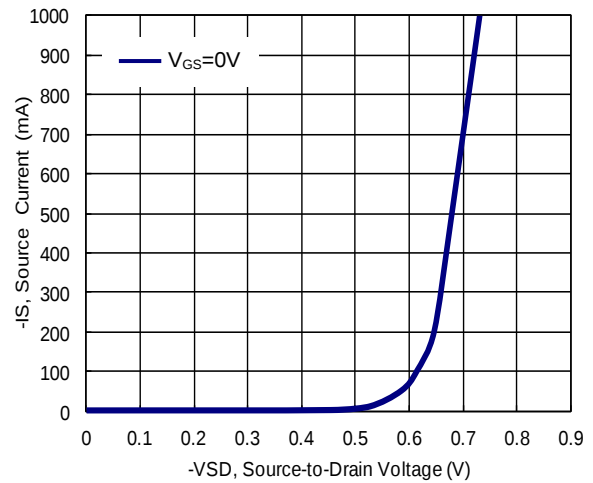
Typical Transfer Characteristics



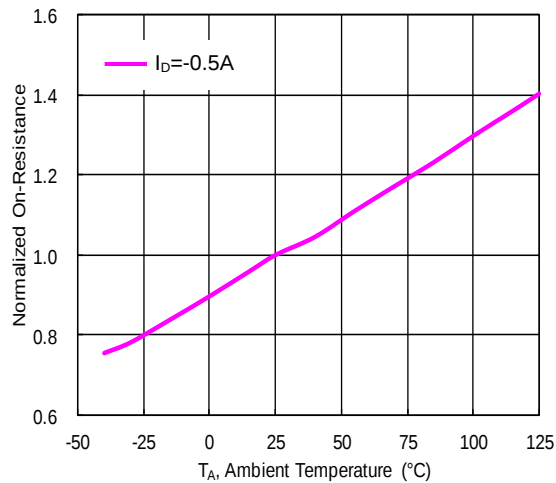
On-Resistance vs. Gate-to-Source Voltage



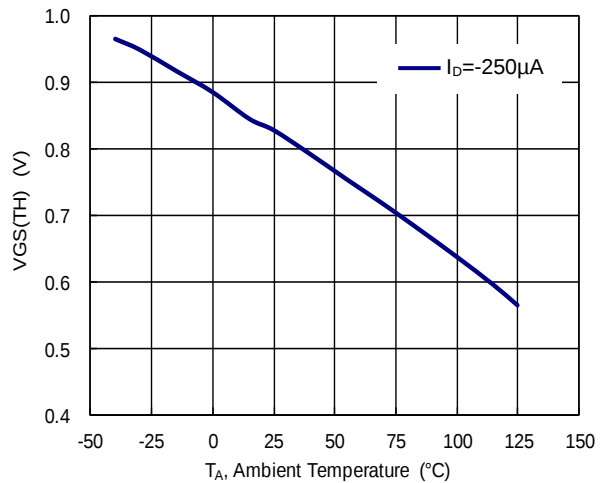
Diode Forward Voltage vs. Current



On-Resistance vs. Ambient Temperature



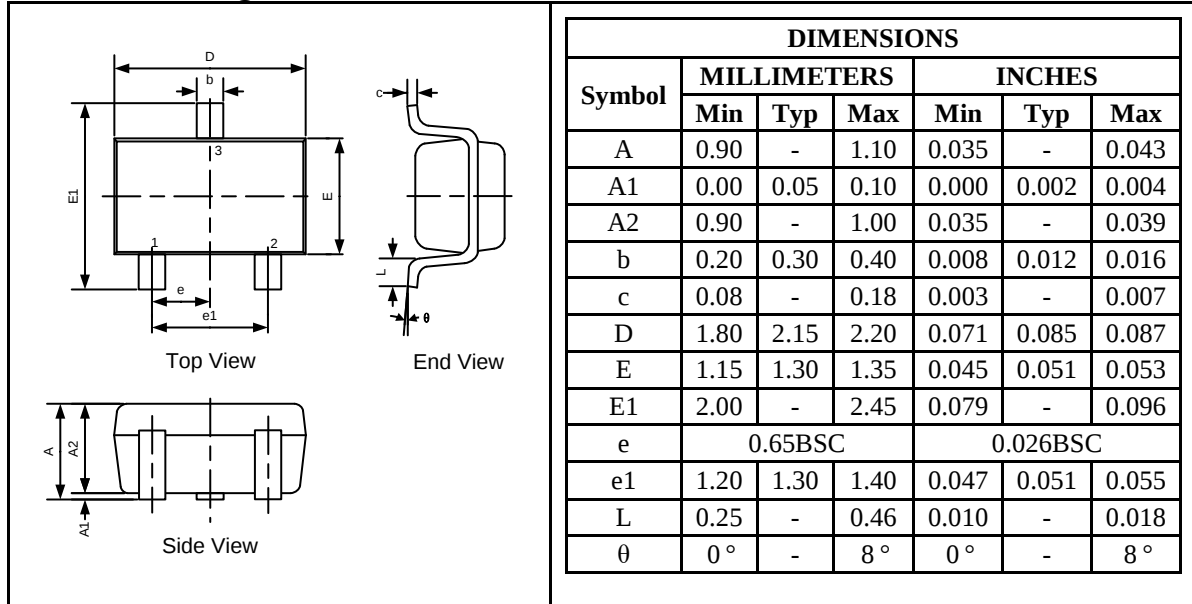
Threshold Voltage vs. Ambient Temperature



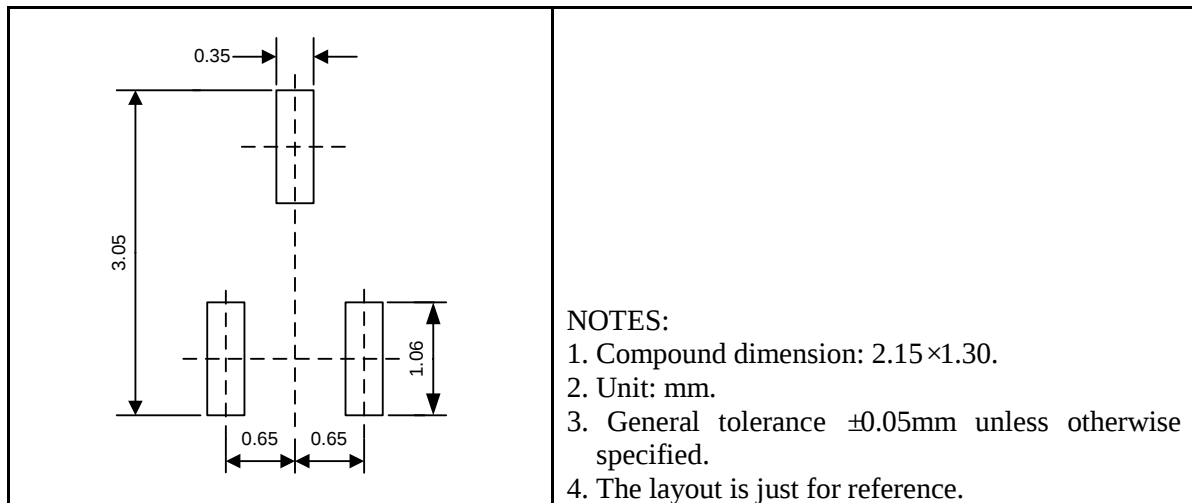
Package Information

UM8517PP SOT323

Outline Drawing



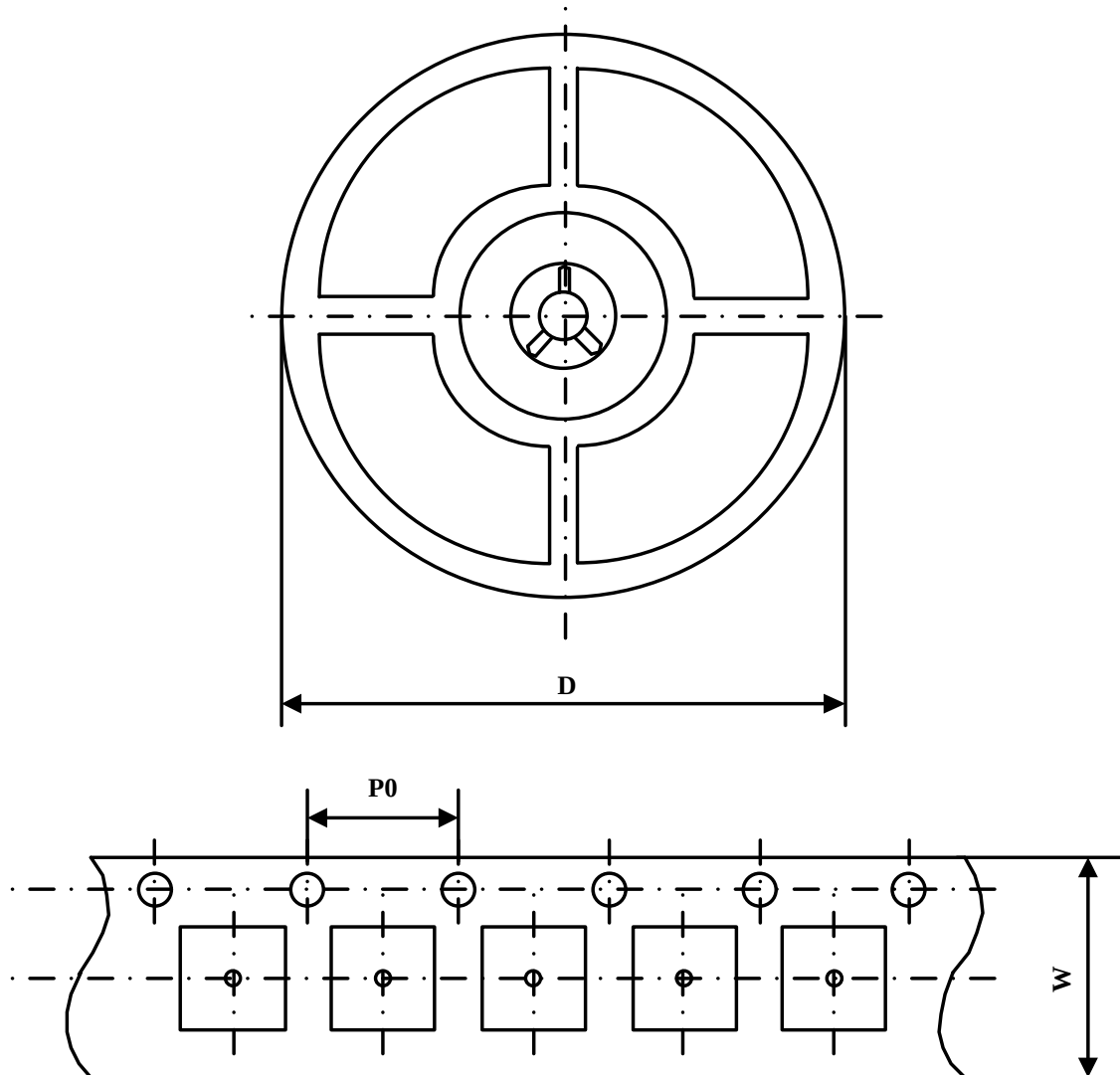
Land Pattern



Tape and Reel Orientation



Packing Information



Part Number	Package Type	Carrier Width(W)	Pitch(P0)	Reel Size(D)
UM8517PP	SOT323	8 mm	4 mm	180 mm

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