

## 20V P-Channel Power MOSFET

### UM8517P SOT323

#### General Description

The UM8517P is a low threshold P-channel MOSFET, having extremely low on-resistance. This benefit provides the designer with an extremely efficient device for use in battery and load management applications. The device uses a space-saving, small-outline SOT323 package.

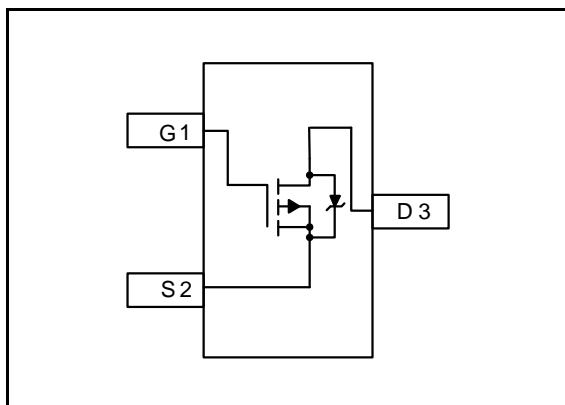
#### Applications

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

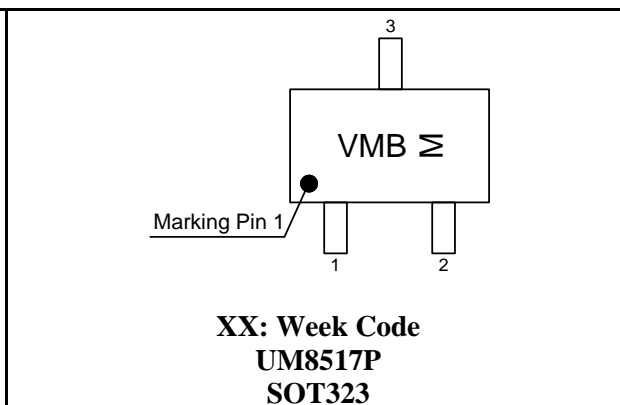
#### Features

- 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
UM8517P	SOT323	VMB	3000pcs/7 Inch Tape & Reel

#### Absolute Maximum Ratings

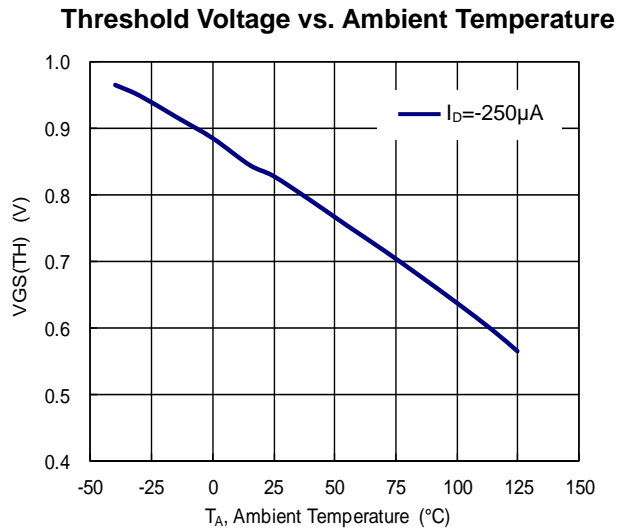
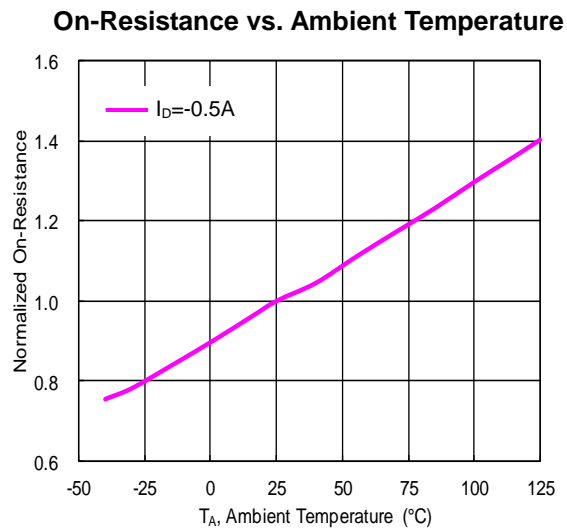
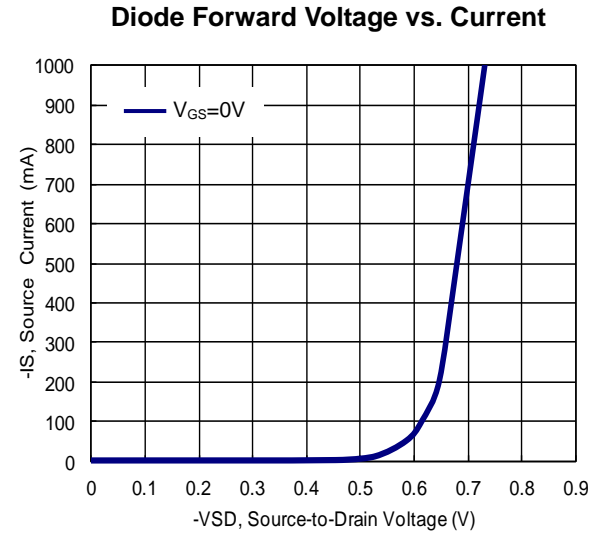
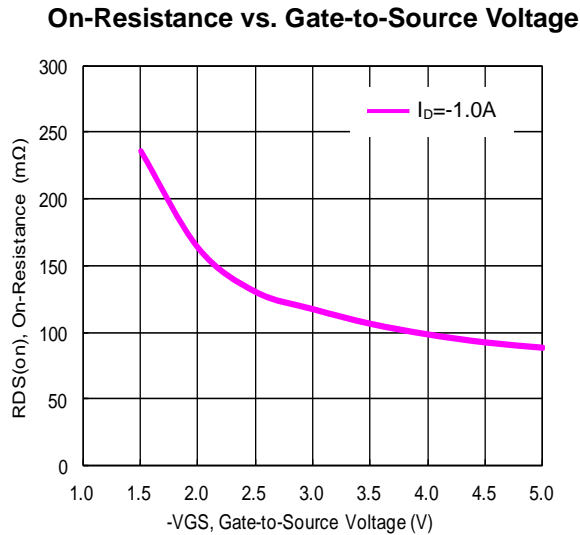
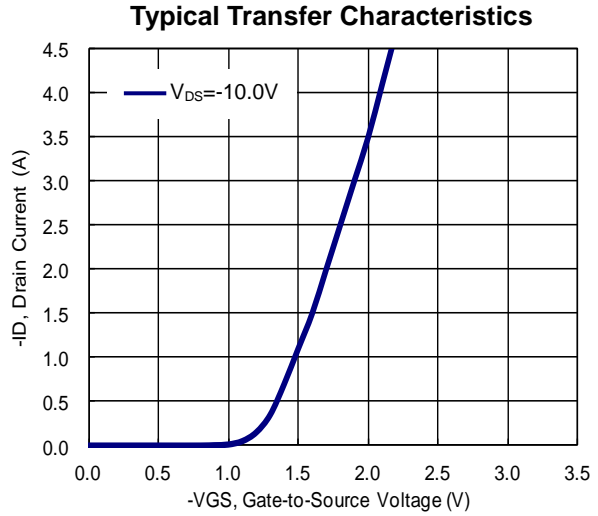
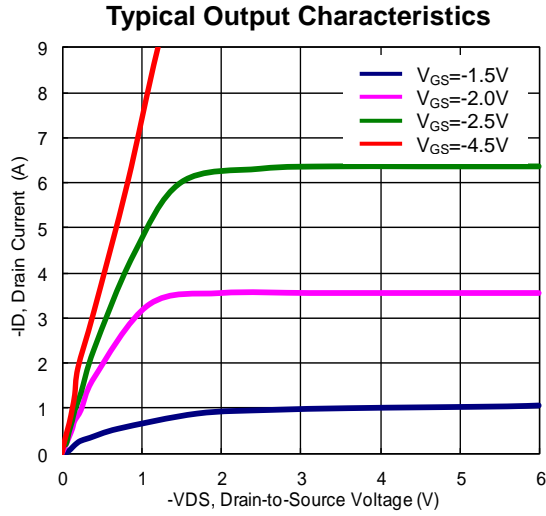
Symbol	Parameter	Value	Units
$V_{DSS}$	Drain-Source Voltage	-20	V
$V_{GS}$	Gate-Source Voltage	±12	V
$I_D$	Continuous Drain Current	-1.4	A
$I_{DM}$	Drain Current Pulsed	-3.0	A
$P_D$	Power Dissipation	0.3	W
$T_J$	Junction Temperature	-55~150	°C
$T_{STG}$	Storage Temperature	-55~150	°C
$R_{\theta JA}$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

**Electrical Characteristics**

 (T<sub>J</sub>=25°C, unless otherwise noted)

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

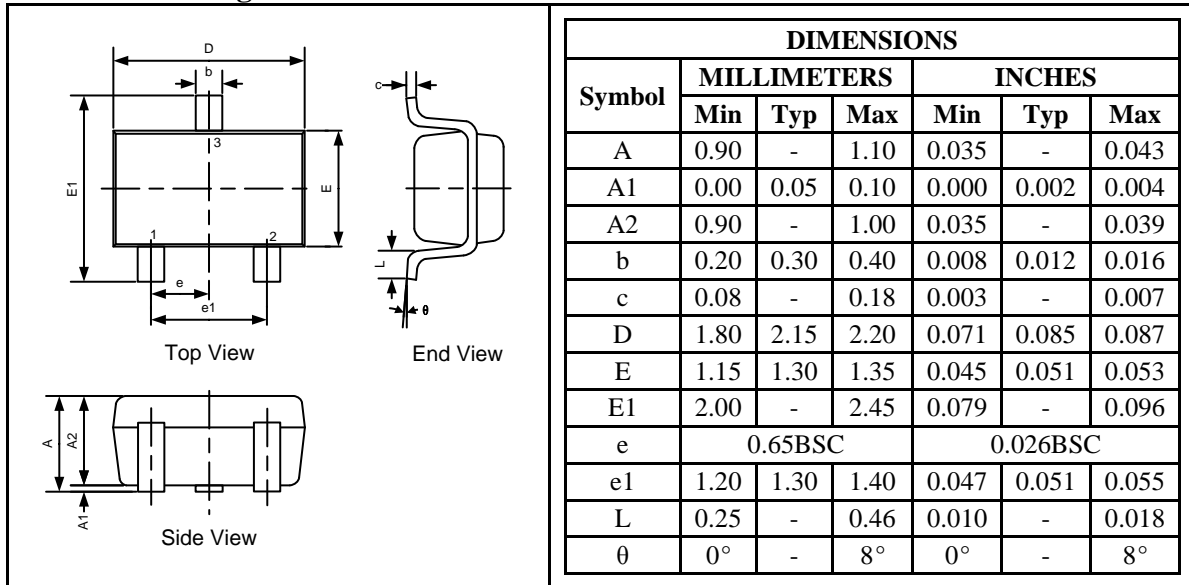
## Typical Characteristics ( $T_J=25^\circ\text{C}$ , unless otherwise noted)



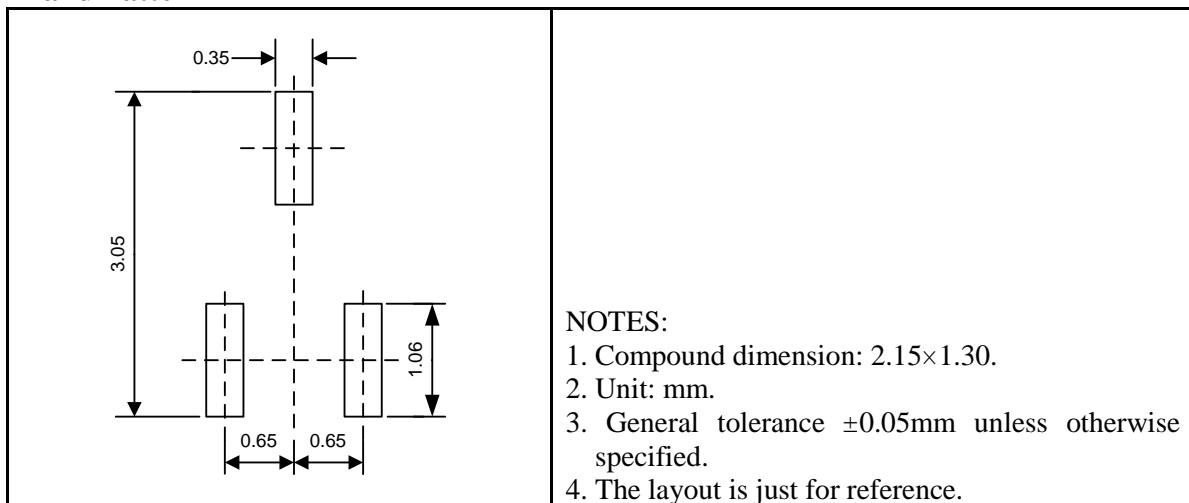
## Package Information

### UM8517P SOT323

#### Outline Drawing



#### Land Pattern



#### Tape and Reel Orientation



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