

## 20V P-Channel Power MOSFET

**UM8517P SOT323**

**UM8517P6 SOT363**

### General Description

The UM8517P/UM8517P6 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 UM8517P uses a space-saving, small-outline SOT323 package while UM8517P6 uses a space-saving, small-outline SOT363 package.

### Applications

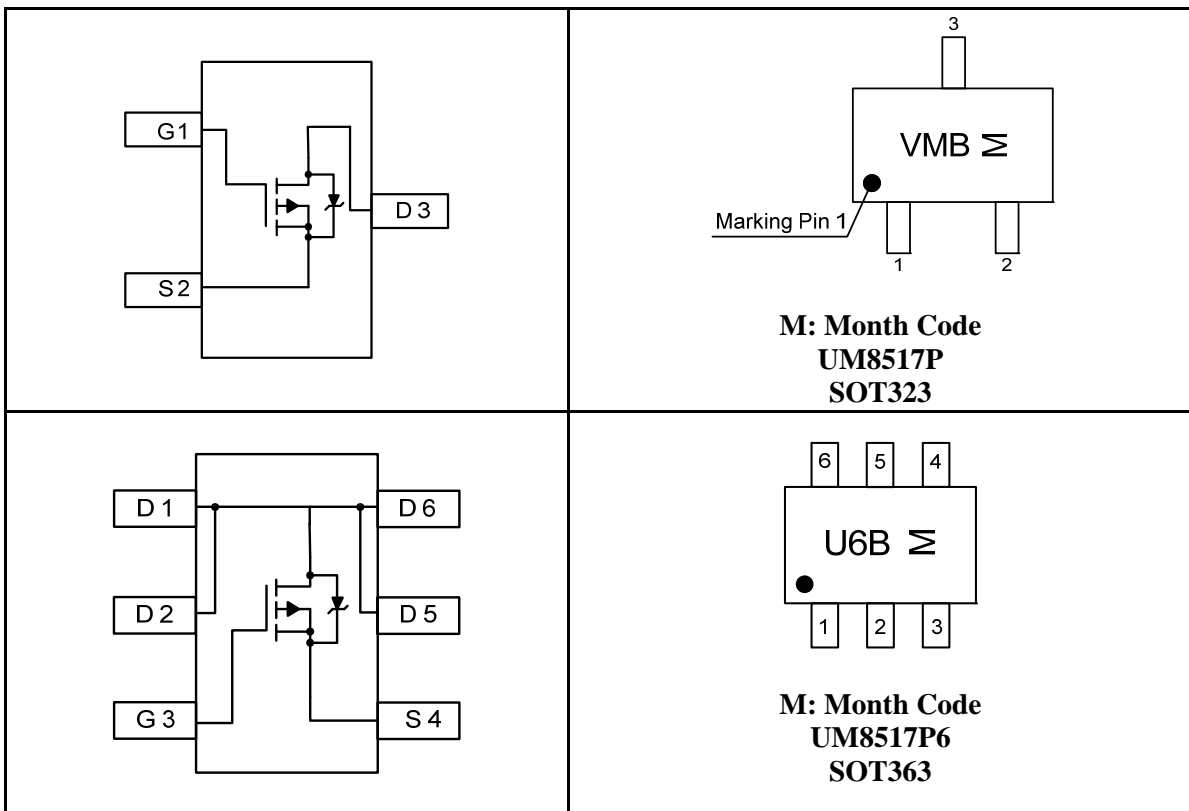
- Battery Packs
- Battery-Powered Portable Equipments
- Cellular and Cordless Telephones

### Features

- Drain-Source Voltage (Max): -20V
- Low On-Resistance:  
90mΩ@V<sub>GS</sub>=-4.5V  
130mΩ@V<sub>GS</sub>=-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
UM8517P6	SOT363	U6B	3000pcs/7 Inch Tape & Reel

**Absolute Maximum Ratings**

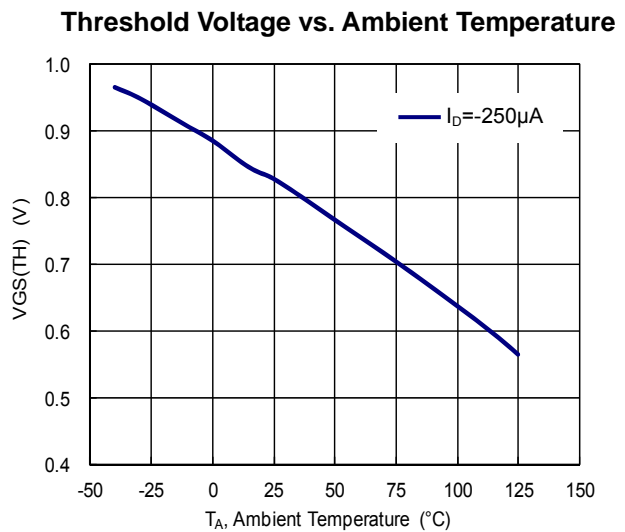
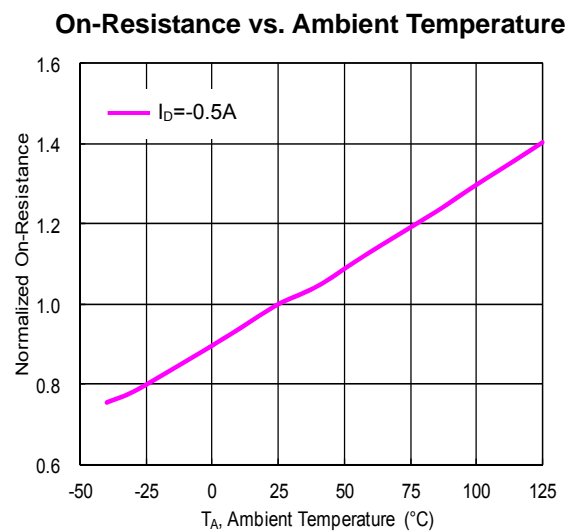
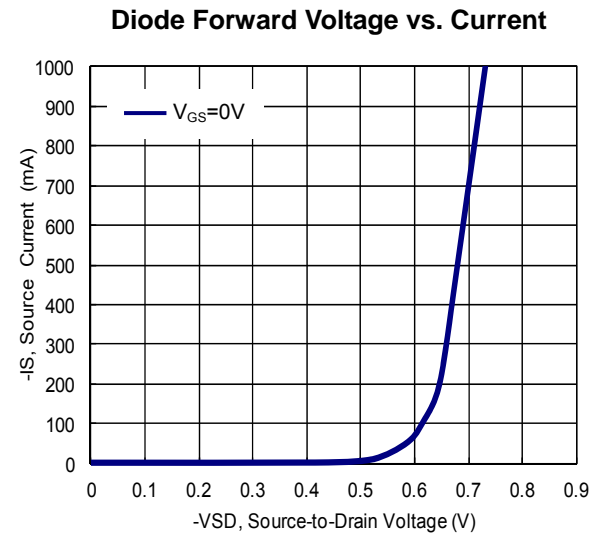
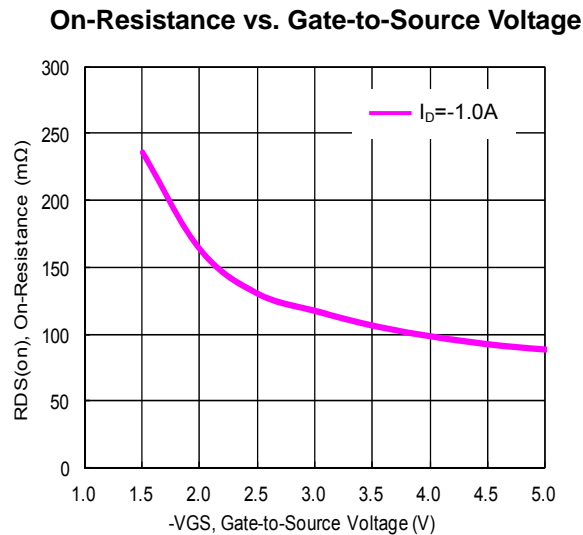
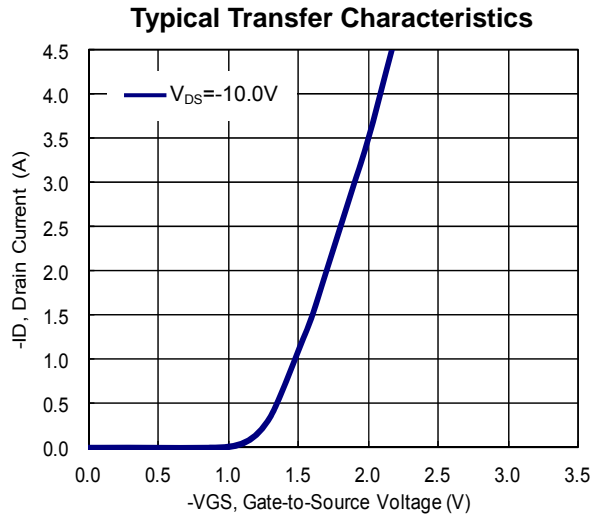
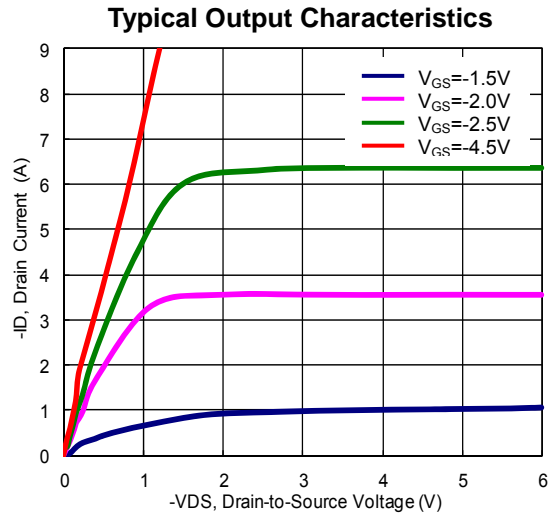
Symbol	Parameter	Value	Units
$V_{DSS}$	Drain-Source Voltage	-20	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current	-1.4	A
$I_{DM}$	Drain Current Pulsed	-3.0	A
$P_D$	Power Dissipation	0.3	W
$T_J$	Junction Temperature	-55~150	$^{\circ}C$
$T_{STG}$	Storage Temperature	-55~150	$^{\circ}C$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

**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

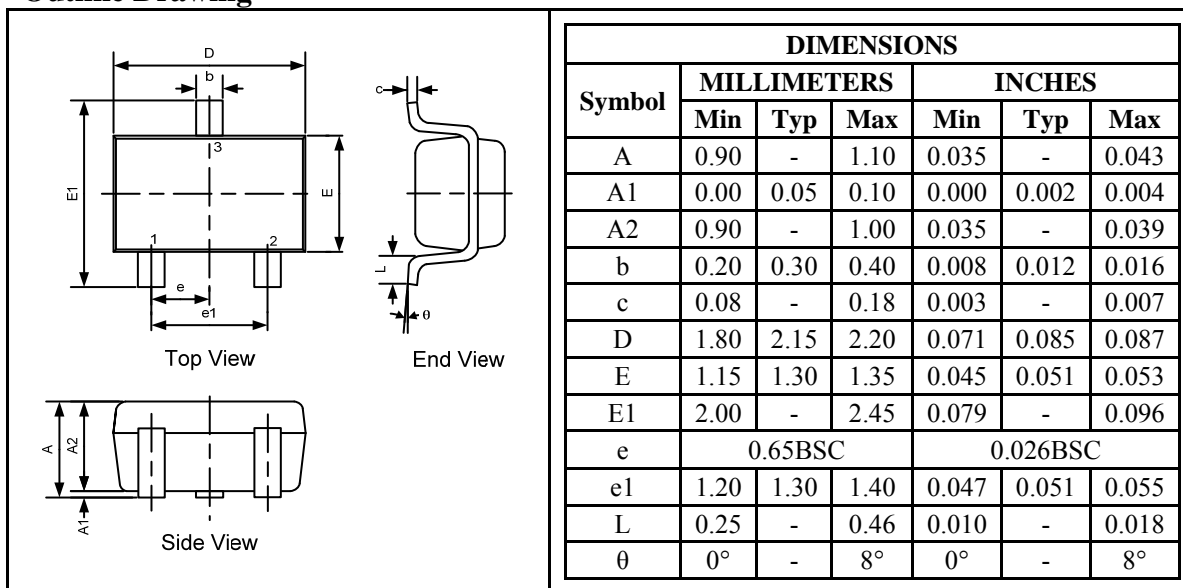
## Typical Characteristics ( $T_J=25^\circ\text{C}$ , unless otherwise noted)



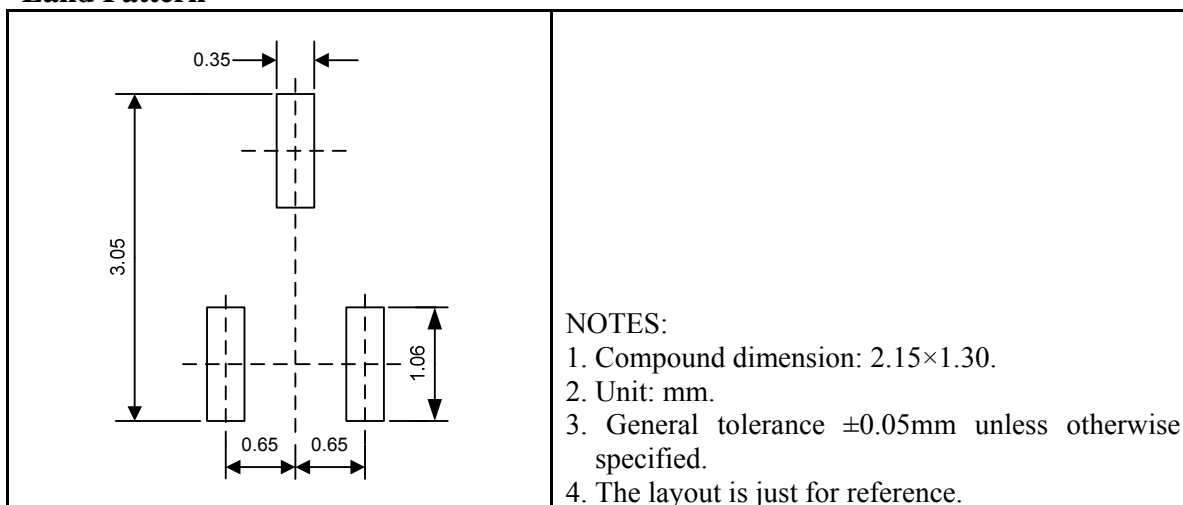
## Package Information

### UM8517P SOT323

#### Outline Drawing



#### Land Pattern

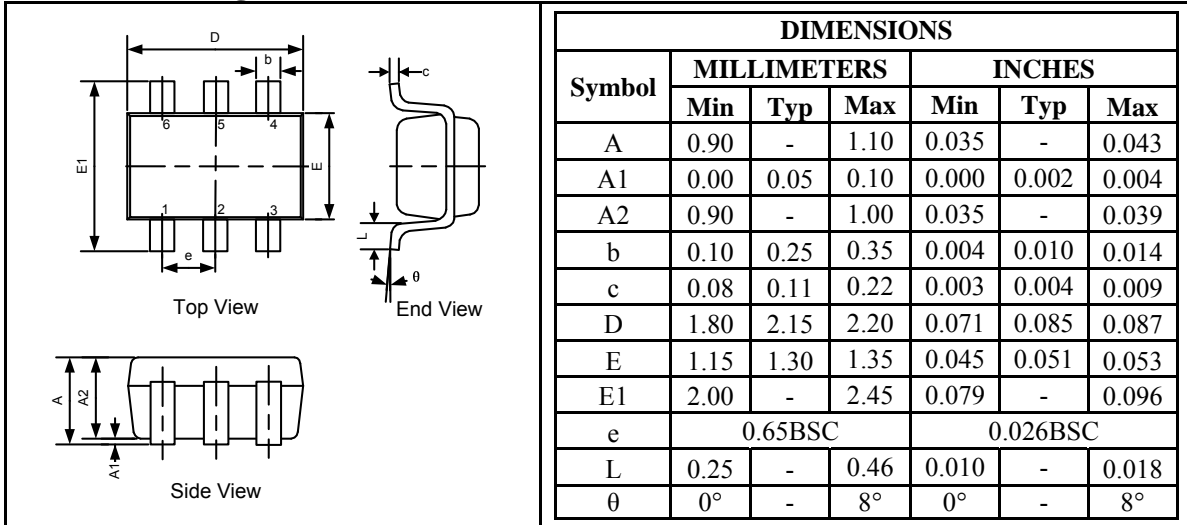


#### Tape and Reel Orientation

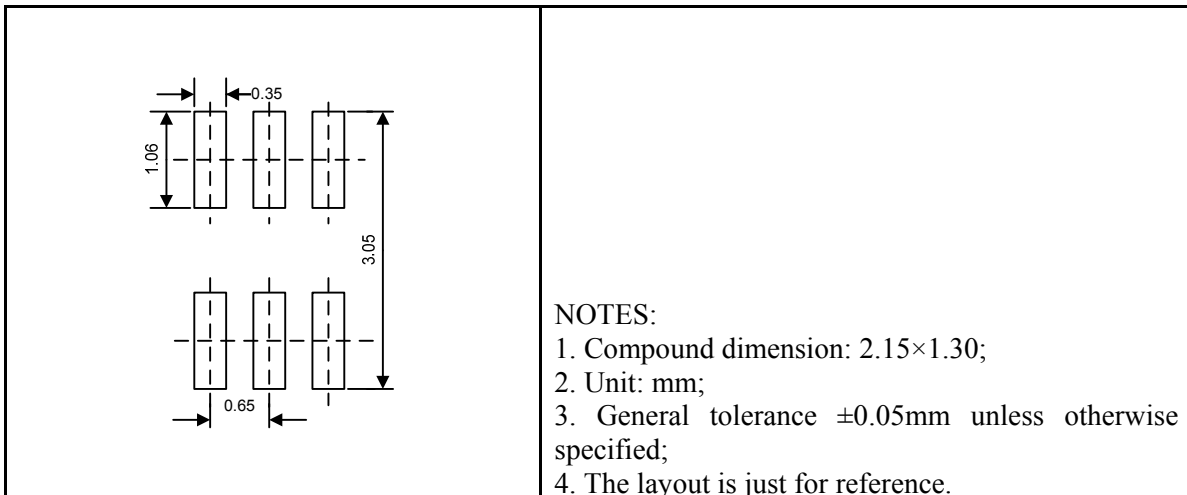


## UM8517P6 SOT363

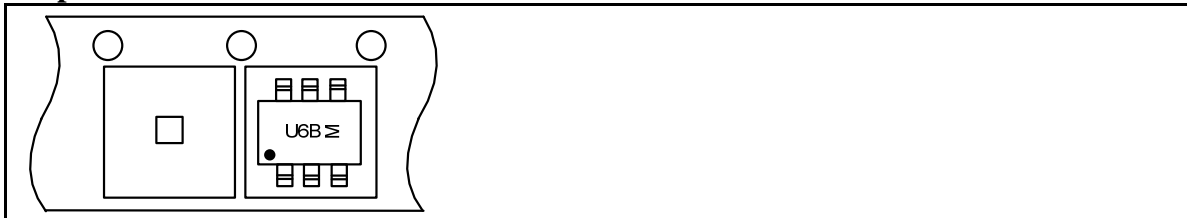
### Outline Drawing



### Land Pattern



### Tape and Reel Orientation



---

## **GREEN COMPLIANCE**

Union Semiconductor is committed to environmental excellence in all aspects of its operations including meeting or exceeding regulatory requirements with respect to the use of hazardous substances. Numerous successful programs have been implemented to reduce the use of hazardous substances and/or emissions.

All Union components are compliant with the RoHS directive, which helps to support customers in their compliance with environmental directives. For more green compliance information, please visit:

[http://www.union-ic.com/index.aspx?cat\\_code=RoHSDeclaration](http://www.union-ic.com/index.aspx?cat_code=RoHSDeclaration)

## **IMPORTANT NOTICE**

The information in this document has been carefully reviewed and is believed to be accurate. Nonetheless, this document is subject to change without notice. Union assumes no responsibility for any inaccuracies that may be contained in this document, and makes no commitment to update or to keep current the contained information, or to notify a person or organization of any update. Union reserves the right to make changes, at any time, in order to improve reliability, function or design and to attempt to supply the best product possible.



Union Semiconductor, Inc

Add: Unit 606, No.570 Shengxia Road, Shanghai 201210

Tel: 021-51093966

Fax: 021-51026018

Website: [www.union-ic.com](http://www.union-ic.com)