

Power MOSFET and Schottky Diode

General Description

The JTM5853 uses advanced trench technology to provide excellent R_{DS(ON)} and low gate charge. Featuring a MOSFET and Schottky Diode, Independent Pin out to each Device to Ease Circuit Design.

Features

- Leadless SMD Package Featuring a MOSFET and Schottky Diode
- 40% Smaller than TSOP-6 Package
- Leadless SMD Package Provides Great Thermal Characteristics
- Independent Pinout to each Device to Ease Circuit Design
- Trench P-Channel for Low On Resistance
- Ultra Low V_F Schottky
- Pb-Free Packages are Available

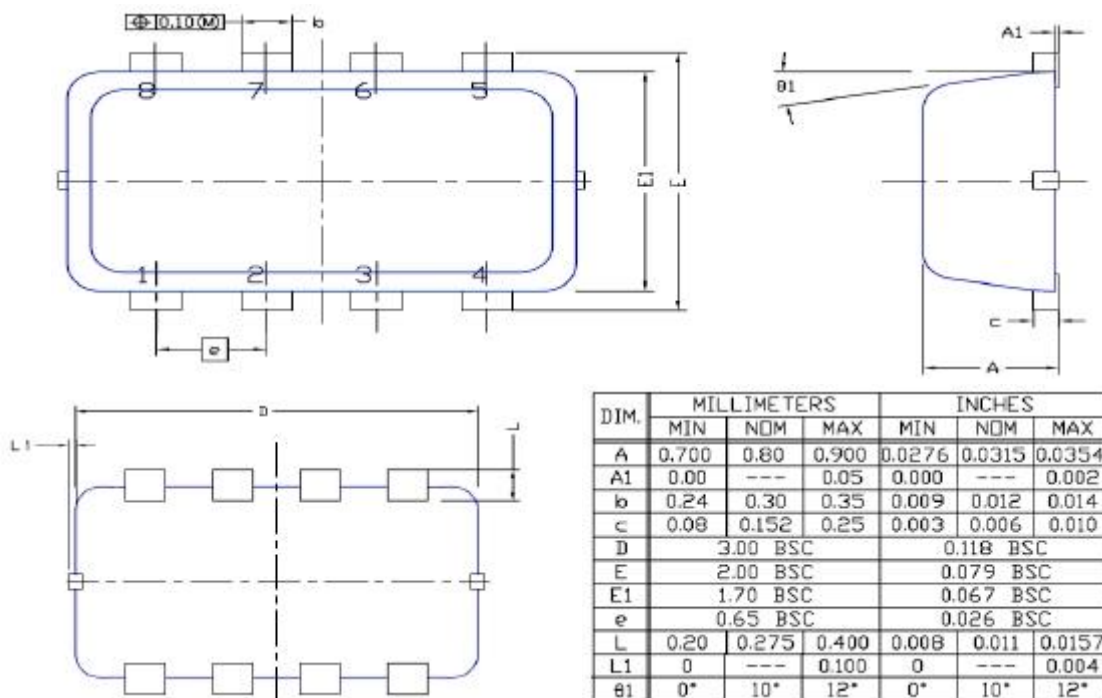
MOSFET		
V _{(BR)DSS}	R _{DS(ON)} TYP	I _D MAX
-22V	79mΩ@-4.5V	-3A
	110mΩ@-2.5V	
SHOTTKY DIODE		
V _R MAX	V _F TYP	I _F MAX
20V	0.47V	3A

Applications

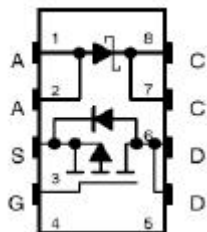
- Li-Ion Battery Charging
- High Side DC-DC Conversion Circuits
- High Side Drive for Small Brushless DC Motors
- Power Management in Portable, Battery Powered Products

Package Information

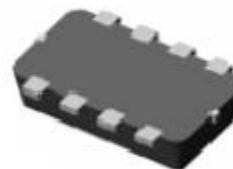
DFN3x2-8L PAXKAGE OUTLINE DIMENSIONS



PIN CONFIGURATION

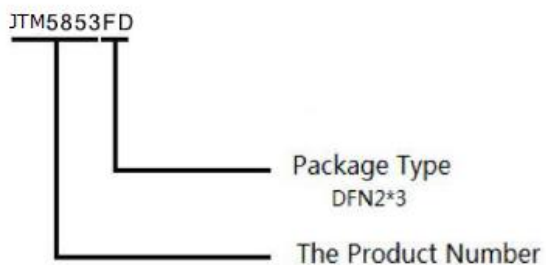


Pin connections



DFN2x3-8L

Ordering Information



Absolute Maximum Ratings (TA = 25°C unless otherwise noted)

Parameter	symbol	value	units
Drain-Source voltage	$V_{(BR)DSS}$	-22	V
Gate-Source Voltage	V_{GS}	8	V
Continuous Drain Current	I_D	-3.0	A
Drain Current-Pulsed	I_{DM}	-12	A
Power Dissipation	P_D	1.1	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55~150	°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	110	°C/W

Electrical Characteristics (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.69	-1	V
Gate-Body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=8V$		5	100	nA
		$V_{DS}=0V, V_{GS}=-8V$		-6	-100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V$		6	100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-3.4A$		79	115	mΩ
		$V_{GS}=-2.5V, I_D=-2.5A$		110	145	mΩ
		$V_{GS}=-1.8V, I_D=-1.5A$		215	250	mΩ
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=4.5A$		10		S
Source-drain (diode forward) voltage	V_{SD}	$V_{GS}=0V, I_D=0.9A$		0.62	1.0	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=8V,$ $V_{GS}=0V,$ $F=1MHz$		580		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			70		
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V,$ $R_L=10\Omega,$ $I_D=1A,$ $V_{GEN}=4.5V,$ $R_g=6\Omega$		8	20	ns
Rise Time	t_r			10	25	
Turn-Off Delay Time	$t_{d(off)}$			35	70	
Fall-Time	t_f			30	60	
Total Gate Charge	Q_g	$V_{DS}=10V,$ $V_{GS}=4.5V,$ $I_D=6A$		10	15	nC
Gate-Source Charge	Q_{gs}			2.3		
Gate-Drain Charge	Q_{gd}			2.9		

SCHOTTKY DIODE ELECTRICAL CHARACTERISTICS (Tj=25°C, Unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Forward voltage	V_F	$I_F=0.1A$		0.42		V
		$I_F=0.5A$		0.47		
		$I_F=1A$		0.53		
Reverse current	I_R	$V_R=10V$		1.5	4	μA
		$V_R=20V$		2.3	10	

