



PM3401B

-4.2A -30V P-CHANNEL MOSFET

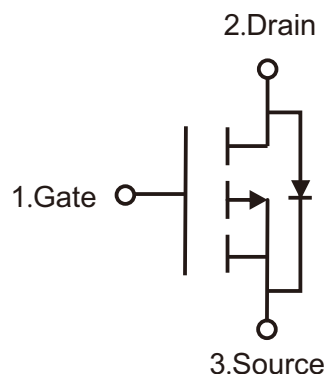
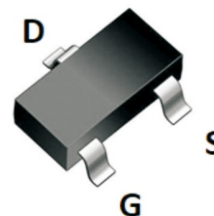
Features

- $V_{DS} = -30V, I_D = -4.2A$
- $R_{DS(ON)} < 100m\Omega @ V_{GS} = -2.5V$
- $R_{DS(ON)} < 74m\Omega @ V_{GS} = -4.5V$
- $R_{DS(ON)} < 59m\Omega @ V_{GS} = -10V$
- High Power and Current Handling Capability
- Surface Mount Package
- Lead Free Product is Acquired

Application

- Load Switch
- PWM Applications
- Power Management

SOT-23



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

Parameter	Symbols	Limit	Units
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	-4.2	A
Pulsed Drain Current (Note 1)	$I_{DM}$	-30	A
Power Dissipation	$P_D$	1.2	W
Operation Junction Temperature and Storage Temperature	$T_j, T_{stg}$	-55 ~ +150	°C

Electrical Characteristics (TA=25°C, unless otherwise specified)

Parameter	Symbols	Test Conditions	Min	Typ	Max	Units
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = -24V, V_{GS} = 0V$			-1.0	$\mu A$
Gate- Source Leakage Current	Forward	$I_{GSS}$			100	nA
	Reverse				-100	



Electrical Characteristics (TA=25°C, unless otherwise specified)

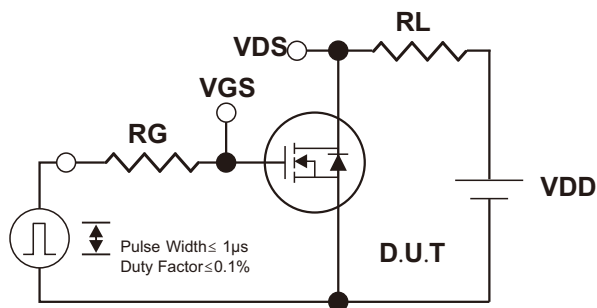
Parameter	Symbols	Test Conditions	Min	Typ	Max	Units
<b>On Characteristics</b> (Note 2)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.6	-0.88	-1.3	V
Static Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$		49	59	mΩ
		$V_{GS} = -4.5V, I_D = -4A$		57	74	mΩ
		$V_{GS} = -2.5V, I_D = -2A$		79	100	mΩ
Forward Transconductance	$G_{FS}$	$V_{DS} = -5V, I_D = -4.2A$		10		S
<b>Dynamic Characteristics</b> (Note 3)						
Input Capacitance	$C_{ISS}$	$V_{DS} = -15V,$		880		pF
Output Capacitance	$C_{OSS}$	$V_{GS} = 0V,$		105		pF
Reverse Transfer Capacitance	$C_{RSS}$	$F = 1.0MHz$		65		pF
<b>Switching Characteristics</b> (Note 3)						
Total Gate Charge	$Q_G$	$V_{DS} = -15V, V_{GS} = -4.5V,$ $I_D = -4.2A$		8.5		nC
Gate-Source Charge	$Q_{GS}$			1.8		nC
Gate-Drain Charge	$Q_{GD}$			2.7		nC
Turn-On Delay Time	$T_{D(on)}$	$V_{DS} = -15V, V_{GS} = -10V,$ $I_D = -4.2A, R_{GEN} = 6\Omega$		7		ns
Turn-On Rise Time	$T_R$			3		ns
Turn-Off Delay Time	$T_{D(off)}$			30		ns
Turn-Off Fall Time	$T_F$			12		ns
<b>Drain-Source Diode Characteristics And Maximum Ratings</b>						
Drain-Source Diode Forward Voltage (Note 2)	$V_{SD}$	$I_S = -1A, V_{GS} = 0V$			-1.4	V

Notes:

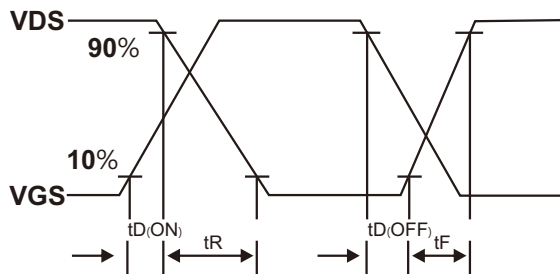
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$ .
3. Guaranteed by design, not subject to production



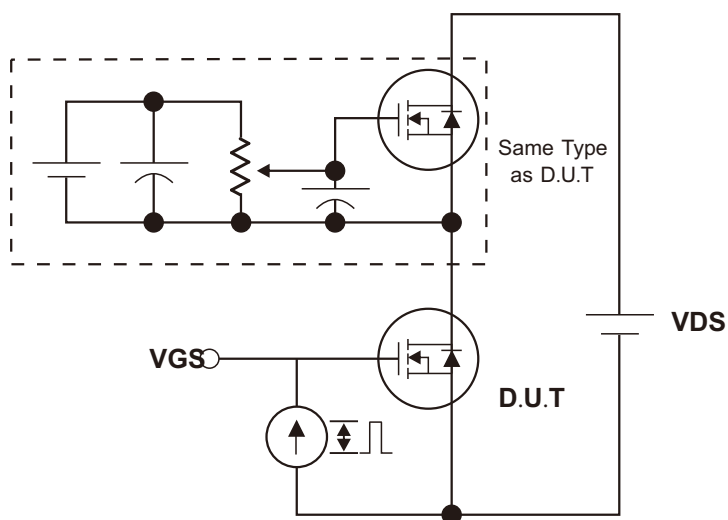
### Test Circuits and waveforms



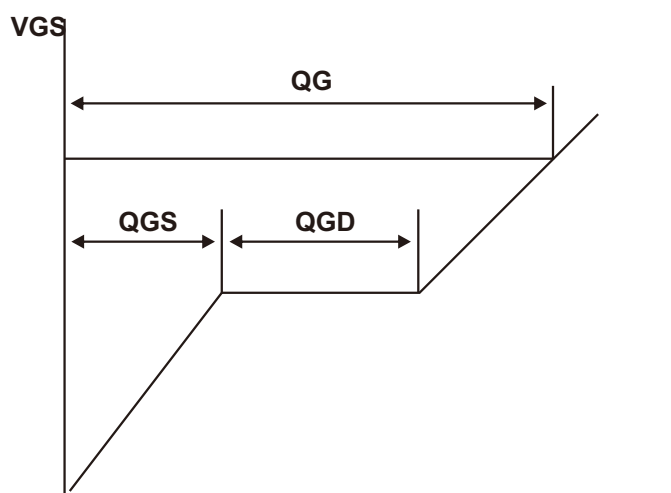
Switching Test Circuit



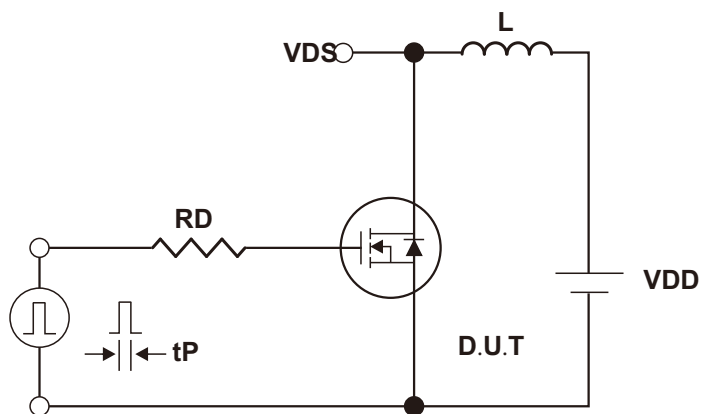
Switching Waveforms



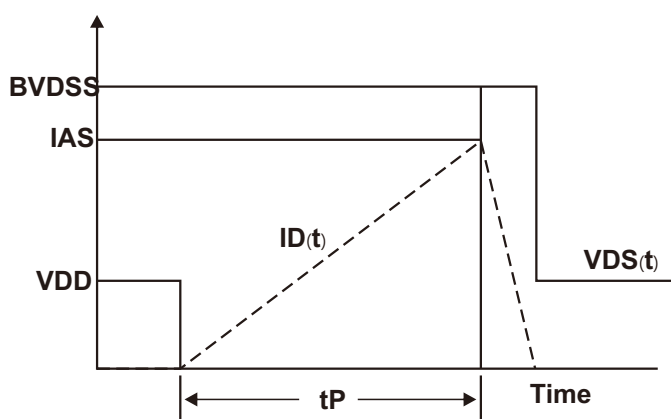
Gate Charge Test Circuit



Charge  
Gate Charge Waveform



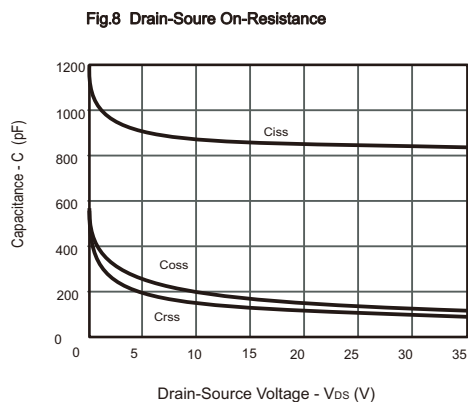
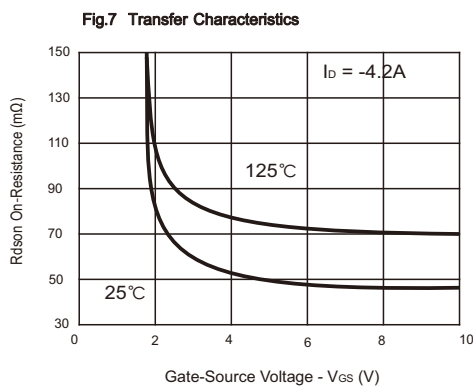
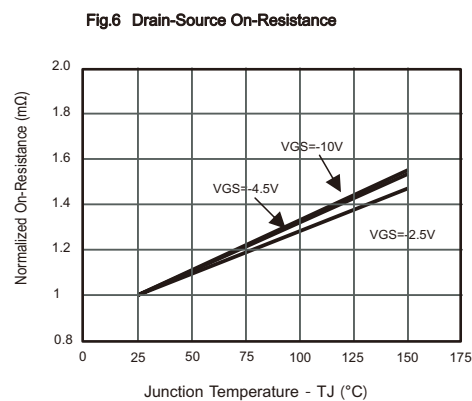
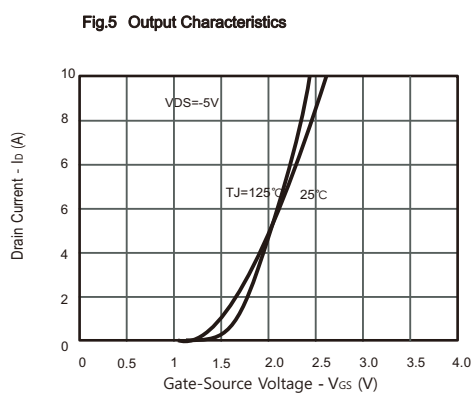
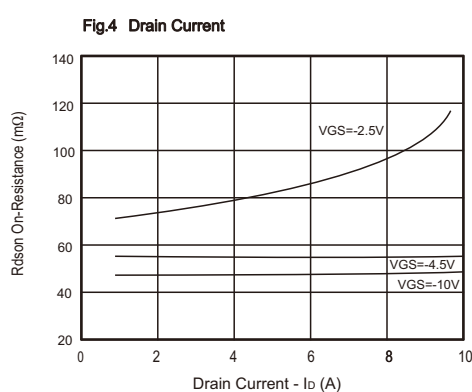
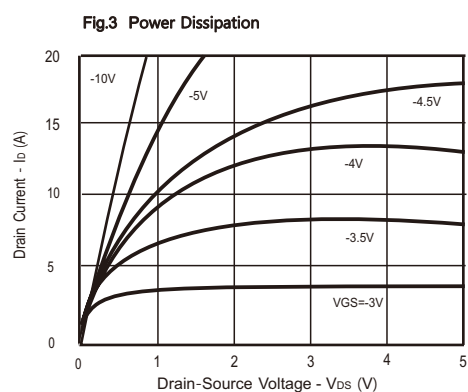
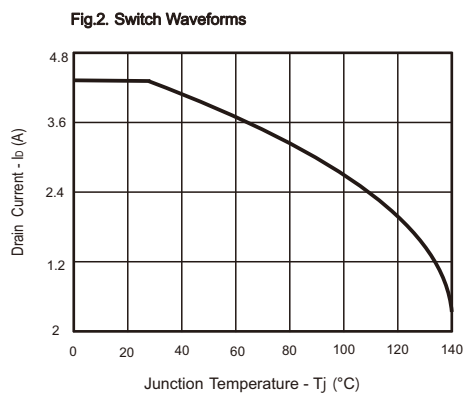
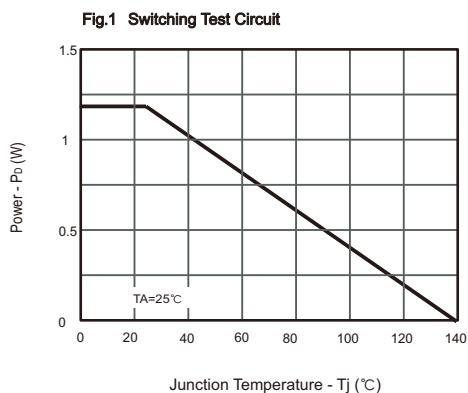
Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

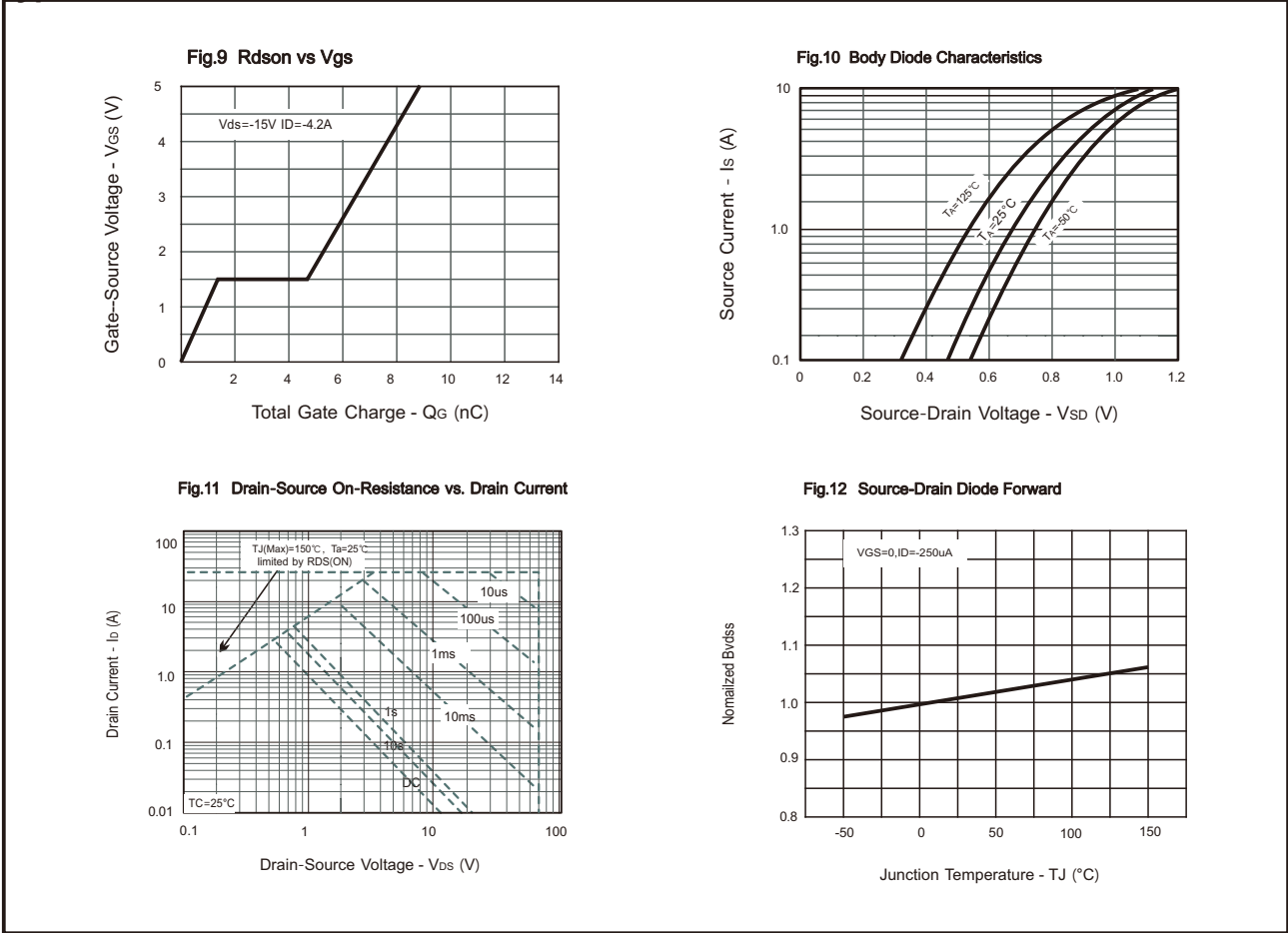


## Typical Characteristics



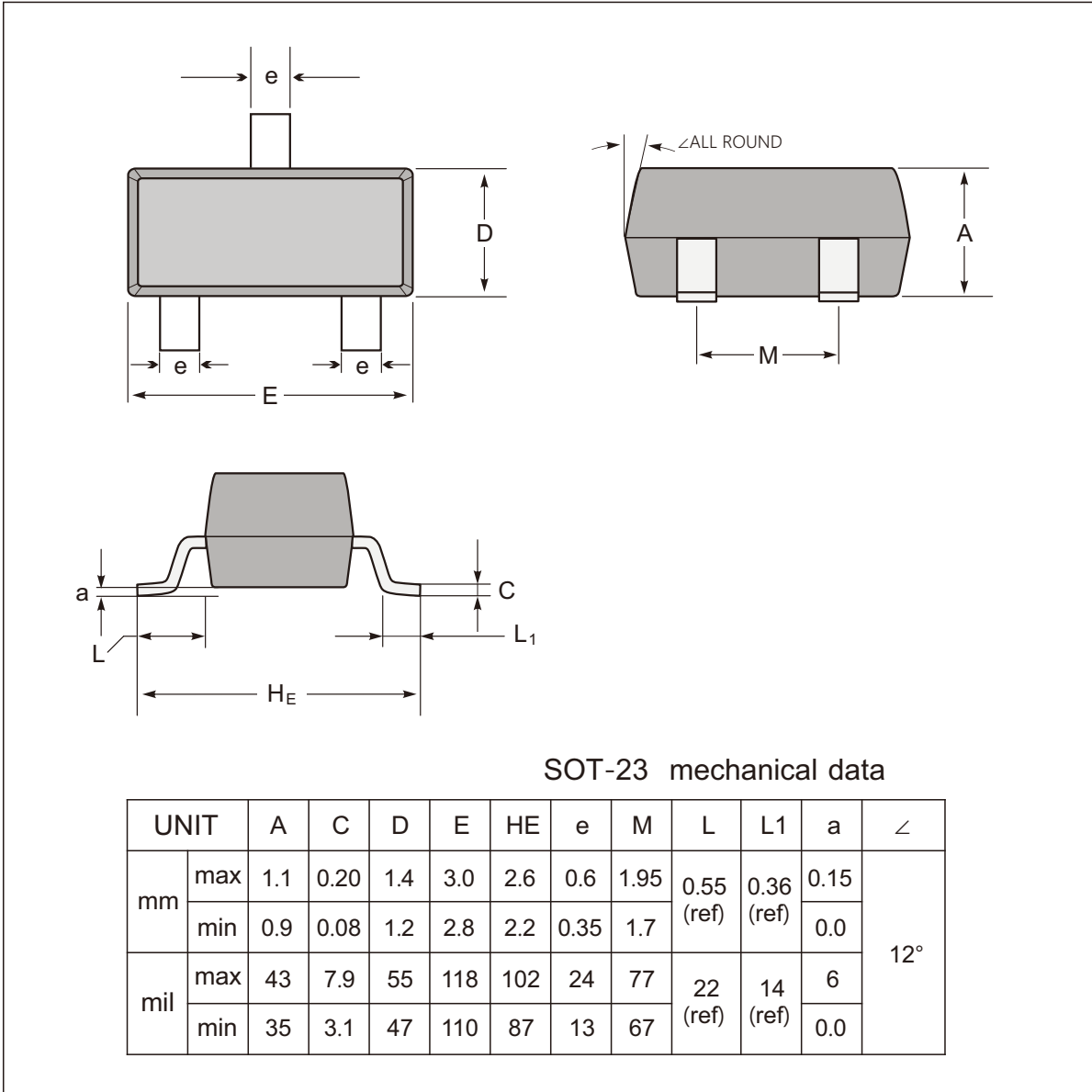


### Typical Characteristics

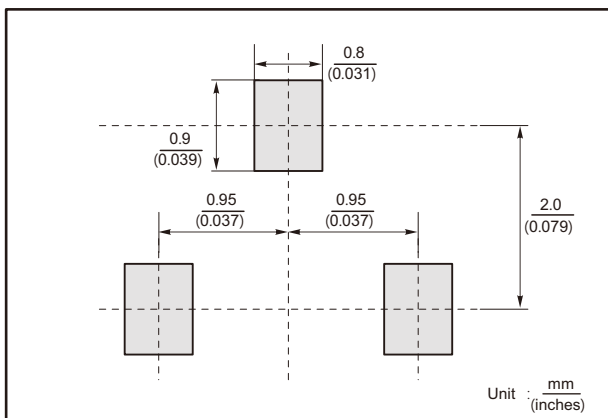




### SOT-23 Package Outline Dimensions



#### The recommended mounting pad size



#### Marking

Type number	Marking code
PM3401B	3401B



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