



**PM3401B**  
**-4.2A -30V P-CHANNEL MOSFET**

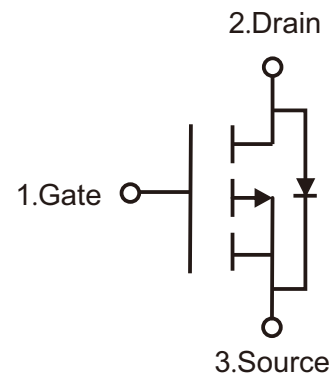
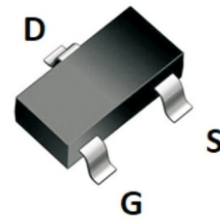
**Features**

- $V_{DS} = -30V, I_D = -4.2A$
- $R_{DS(ON)} < 100m\Omega @ V_{GS} = -2.5V$
- $R_{DS(ON)} < 74m\Omega @ V_{GS} = -4.5V$
- $R_{DS(ON)} < 59m\Omega @ V_{GS} = -10V$
- 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	$I_{GSS}$	$V_{GS} = 12V, V_{DS} = 0V$			100	nA
		$V_{GS} = -12V, V_{DS} = 0V$			-100	



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

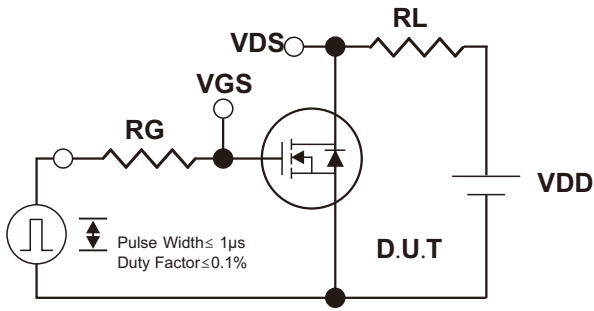
Parameter	Symbols	Test Conditions	Min	Typ	Max	Units
<b>On Characteristics</b> (Note 2)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.6	-0.88	-1.3	V
Static Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$		49	59	mΩ
		$V_{GS} = -4.5V, I_D = -4A$		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:

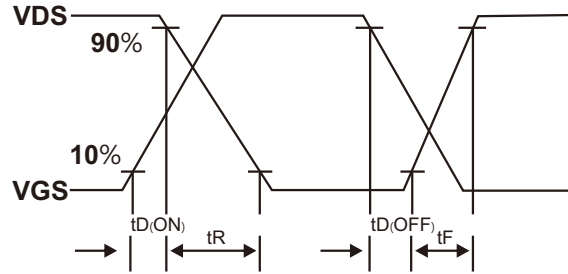
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$ .
3. Guaranteed by design, not subject to production



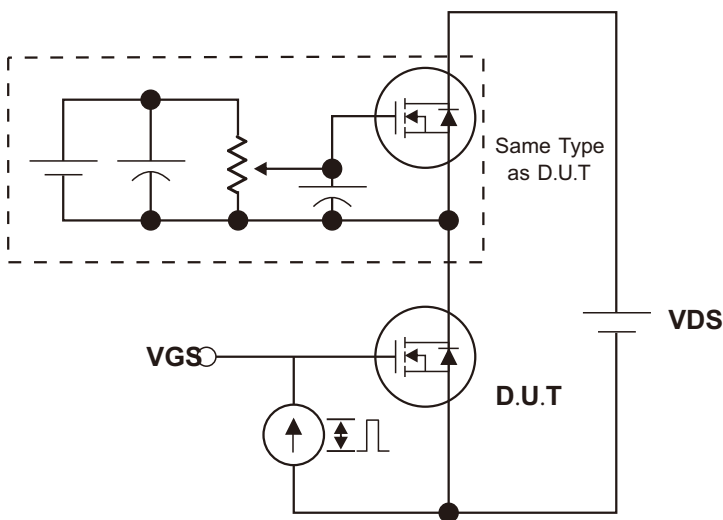
Test Circuits and waveforms



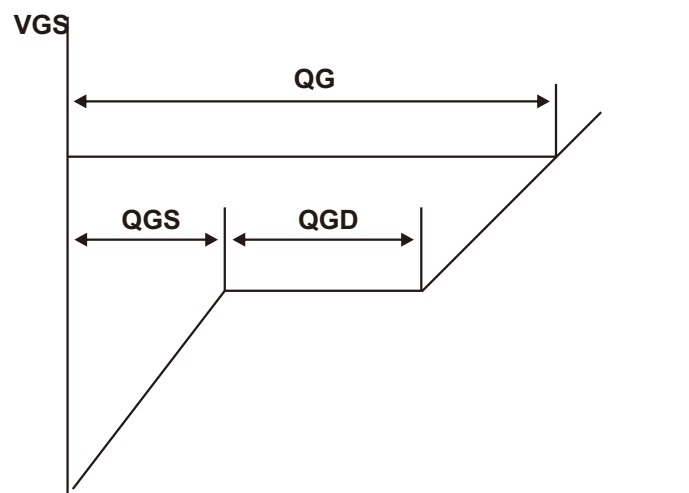
Switching Test Circuit



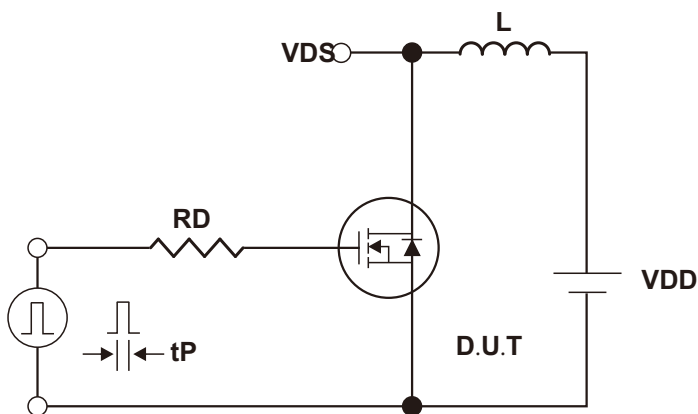
Switching Waveforms



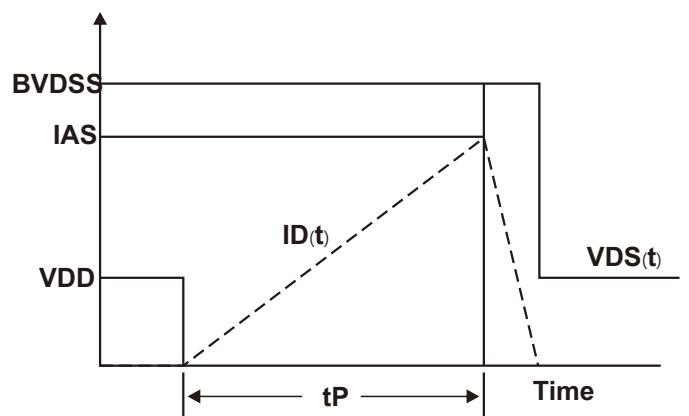
Gate Charge Test Circuit



Charge  
Gate Charge Waveform



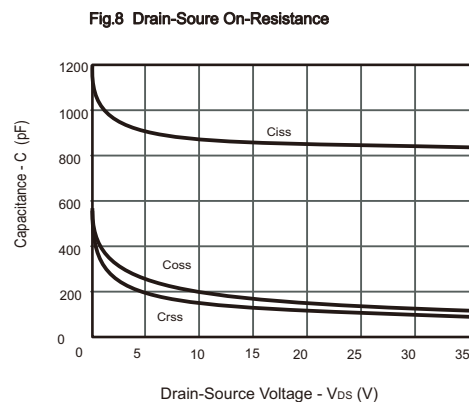
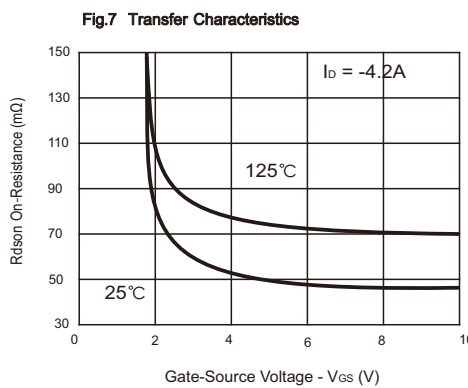
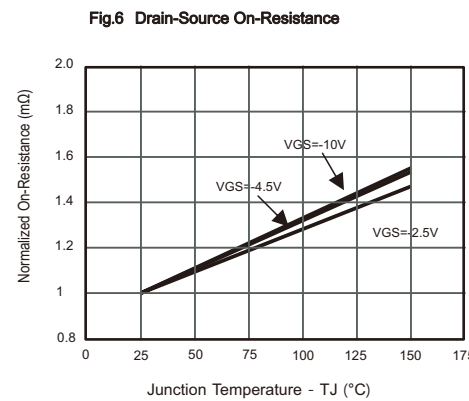
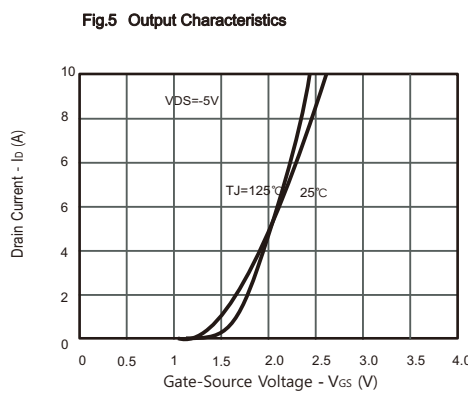
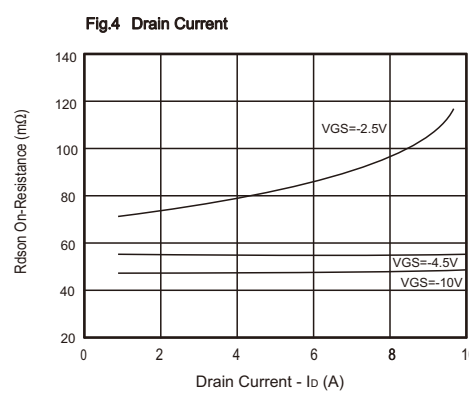
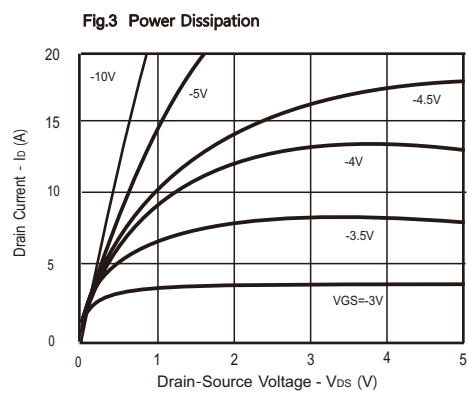
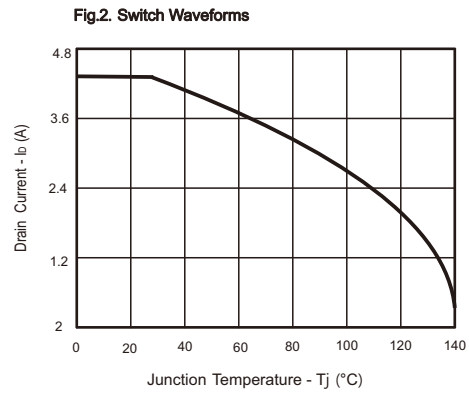
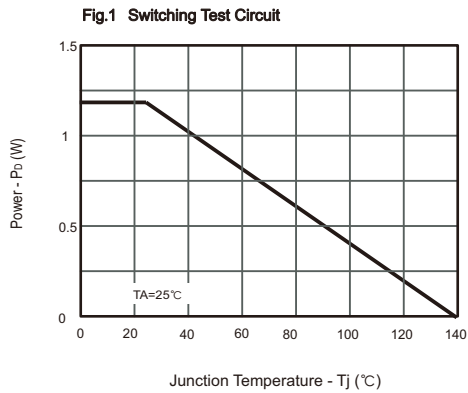
Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

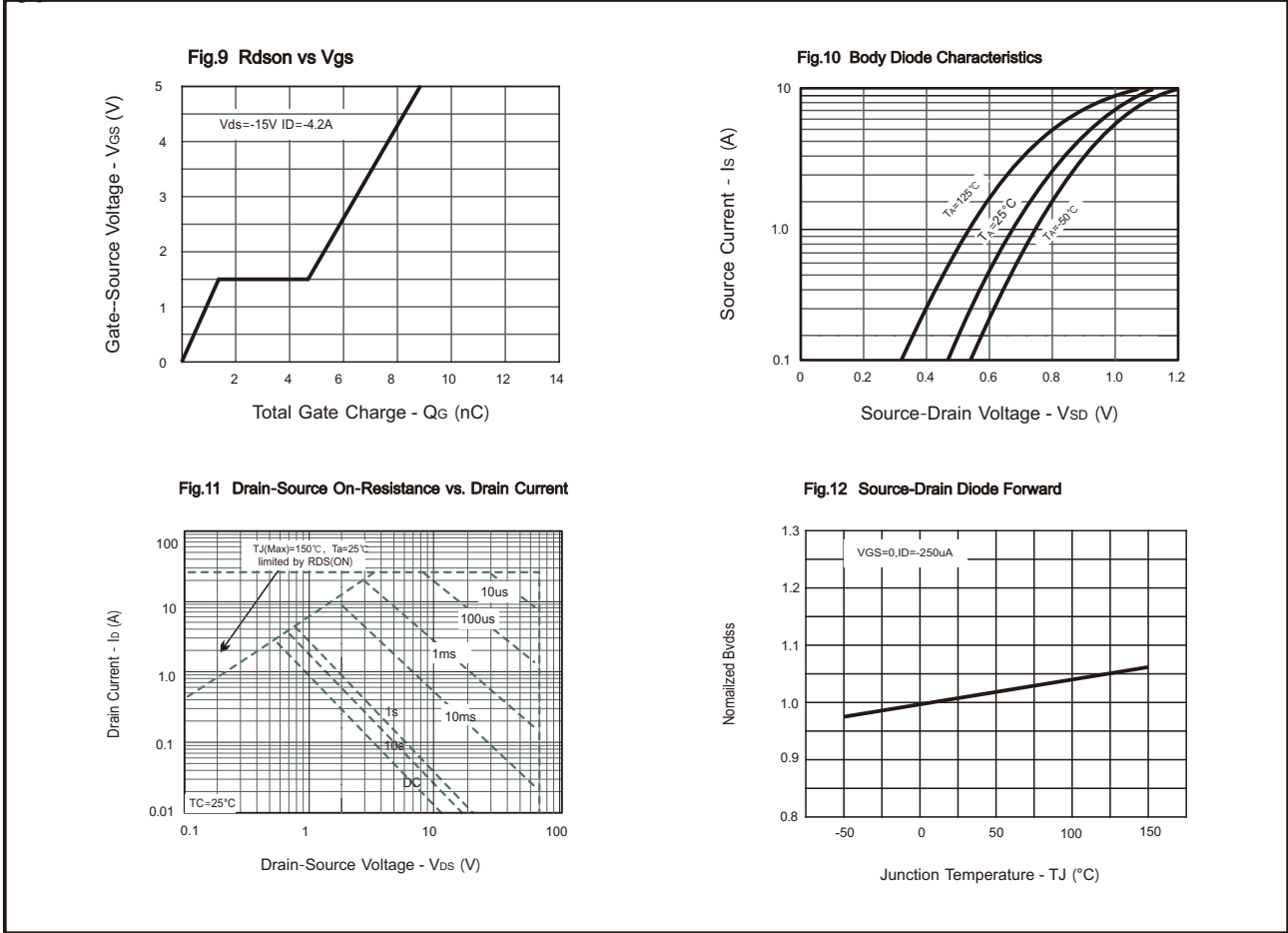


### Typical Characteristics



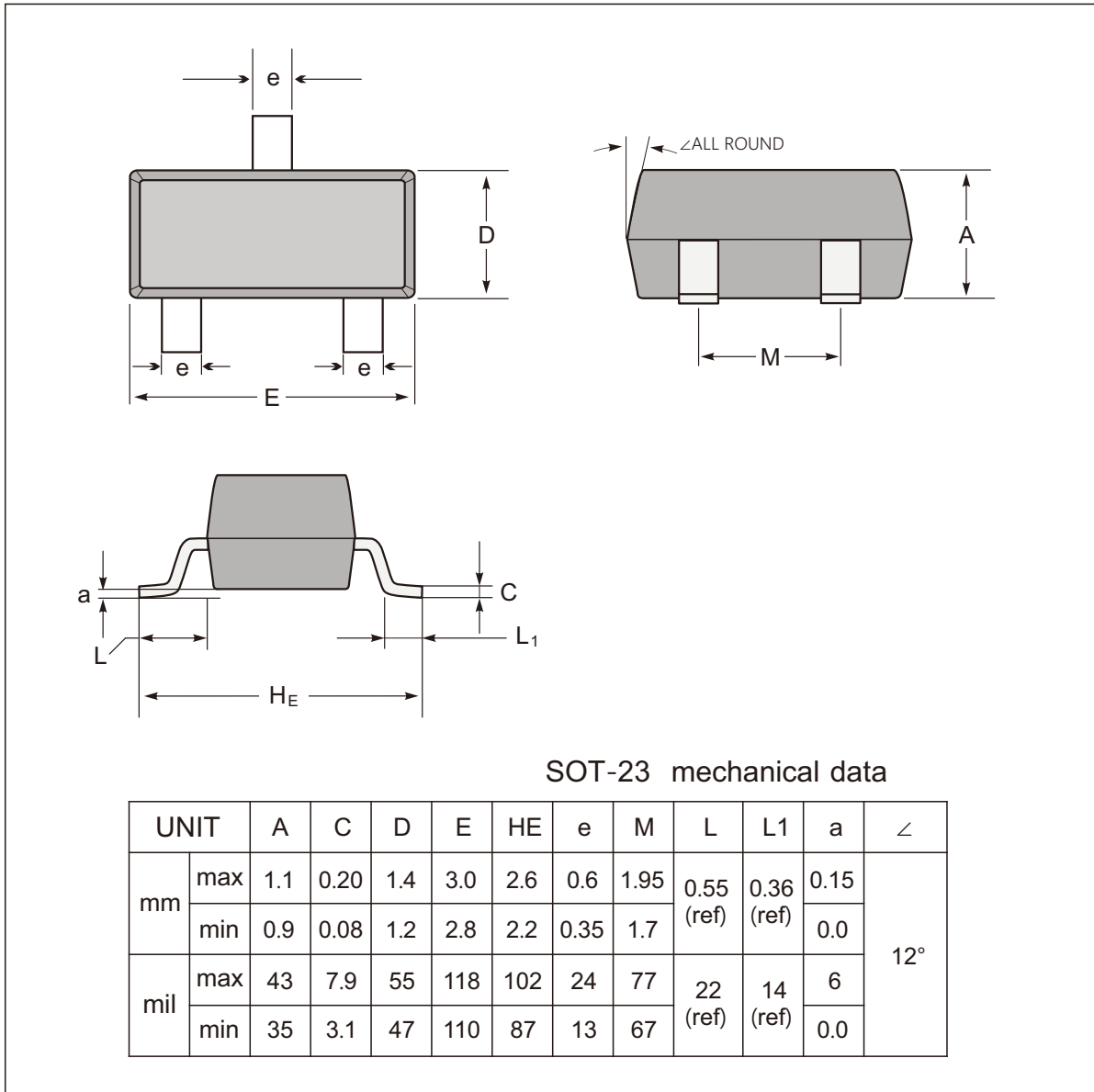


### Typical Characteristics

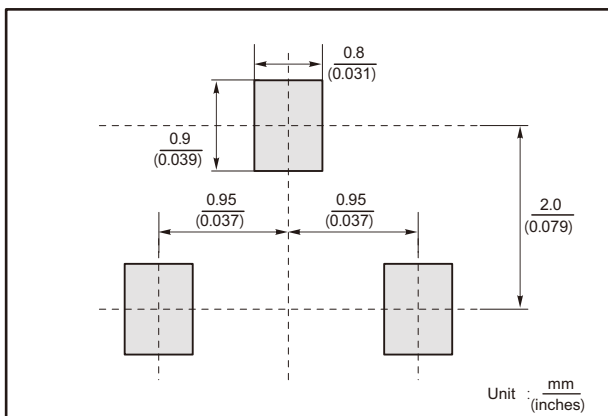




### SOT-23 Package Outline Dimensions



#### The recommended mounting pad size



#### Marking

Type number	Marking code
PM3401B	3401B



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