



## DESCRIPTION

P-channel Enhancement Mode Power MOSFET

## FEATURES

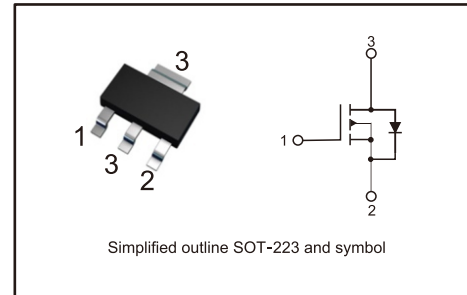
- Advanced Trench Technology
- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- Lead free product is acquired

## APPLICATION

- PWM Applications
- Load Switch
- Power Management

## PINNING

PIN	DESCRIPTION
1	GATE
2	SOURCE
3	DRAIN



## MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	$V_{DSS}$	-60	V	
Gate-Source Voltage	$V_{GSS}$	±20	V	
Continuous Drain Current	$I_D$	Ta=25°C	-5	A
		Ta=100°C	-3	A
Pulsed Drain Current(Note1)	$I_{DM}$	-20	A	
Power Dissipation	$P_D$	1.5	W	
Thermal Resistance-Junction to Ambient(Note2)	$R_{\theta JA}$	81	°C/W	
Operating Junction Temperature	$T_j$	-55 to +150	°C	
Storage Temperature	$T_{stg}$	-55 to +150	°C	



ELECTRICAL CHARACTERISTICS(Ta=25°C unless otherwise noted.)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-60			V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS} = -60V, V_{GS} = 0V$			-1	$\mu A$
Gate- Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 0.1$	$\mu A$
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-2.5	V
Static Drain-Source On-State Resistance(Note3)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = -5A$		90	120	m $\Omega$
		$V_{GS} = 4.5V, I_D = -3A$		110	145	
Dynamic Characteristics						
Input Capacitance	$C_{ISS}$	$V_{DS} = -25V$ $V_{GS} = 0V$ $f = 1MHz$		305		pF
Output Capacitance	$C_{OSS}$			66		
Reverse Transfer Capacitance	$C_{RSS}$			7		
Total Gate Charge	$Q_g$	$V_{DS} = -30V$ $V_{GS} = -10V$ $I_D = -5A$		5		nC
Gate-Source Charge	$Q_{gs}$			0.97		
Gate-Drain Charge	$Q_{gd}$			0.72		
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -30V,$ $R_{GEN} = 5\Omega,$ $V_{GS} = -10V,$ $I_D = -2A,$		7		ns
Turn-On Rise Time	$t_{rr}$			8		
Turn-Off Delay Time	$t_{d(off)}$			16		
Turn-Off Fall Time	$t_f$			4		
Body Diode Characteristics						
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S = -3A, V_{GS} = 0V$			1.2	V
Diode Forward Current	$I_S$				-5	A
Reverse Recovery Charge	$t_{rr}$	$di_{SD}/dt = 100A/\mu s$		25		nS
Reverse Recovery Time	$Q_{rr}$	$I_{SD} = -4A$		31		nC

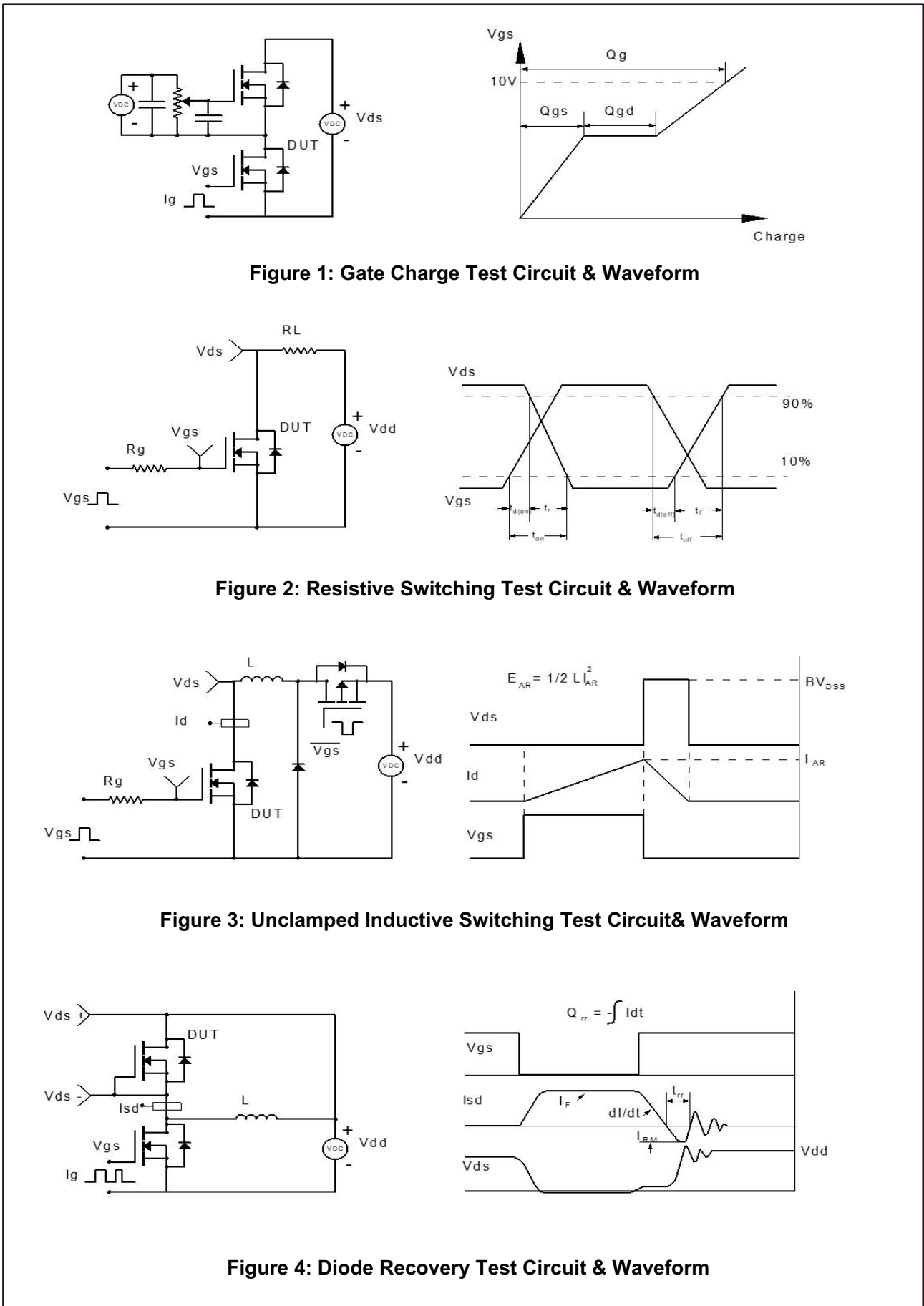
Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2.  $R_{\theta JA}$  is measured with the device mounted on a 1inch<sup>2</sup> pad of 2oz copper FR4 PCB

3. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 0.5\%$ .

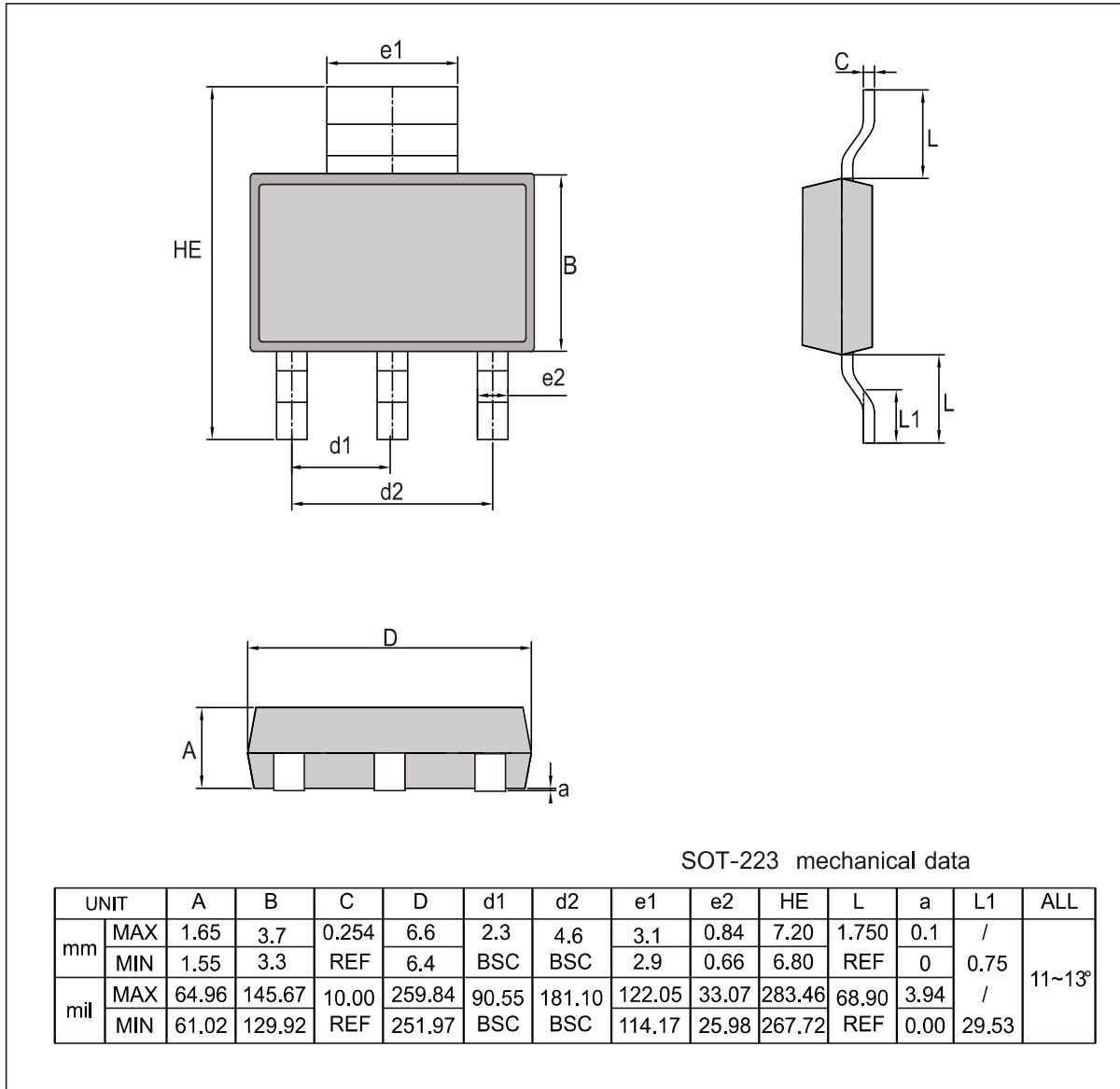


### Test Circuit

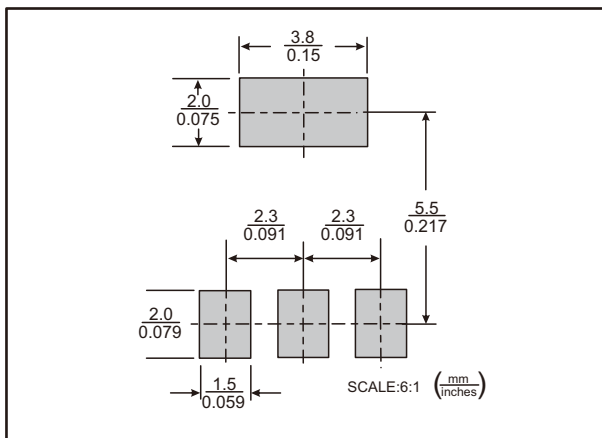




### SOT-223 Package Outline Dimensions



#### The recommended mounting pad size



#### Marking

Type number	Marking code
PM5P60HWK	KSH



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