



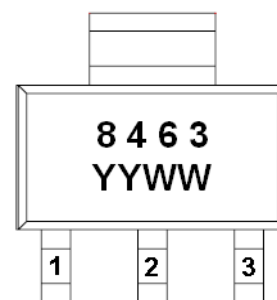
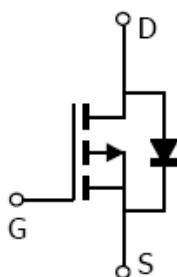
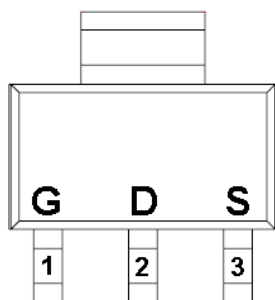
### General Description

AFP8463, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent  $R_{DS(ON)}$ , low gate charge. These devices are particularly suited for low voltage power management, and low in-line power loss are needed in commercial industrial surface mount applications.

### Features

- -40V/-6.0A,  $R_{DS(ON)} = 46m\Omega @ V_{GS} = -10V$
- -40V/-4.2A,  $R_{DS(ON)} = 62m\Omega @ V_{GS} = -4.5V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- SOT-223 package design

### Pin Description ( SOT-223 )



### Application

- Motor and Load Control
- LCD TV Inverter & AD/DC Inverter Systems.
- Backlight Inverter for LCD Display
- Load Switch
- CCFL Inverter

### Pin Define

Pin	Symbol	Description
1	G	Gate
2	D	Drain
3	S	Source

### Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP8463S223RG	8463	SOT-223	Tape & Reel	2500 EA

- ※ YY year code
- ※ WW week code
- ※ AFP8463S223RG : 13" Tape & Reel ; Pb- Free ; Halogen -Free



### Absolute Maximum Ratings

( $T_A=25^\circ\text{C}$  Unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-40	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current( $T_J=150^\circ\text{C}$ )	$I_D$	$T_A=25^\circ\text{C}$	-6.0
		$T_A=70^\circ\text{C}$	-4.2
Pulsed Drain Current	$I_{DM}$	-10	A
Continuous Source Current(Diode Conduction)	$I_S$	-1.6	A
Power Dissipation	$P_D$	$T_A=25^\circ\text{C}$	2.8
		$T_A=70^\circ\text{C}$	1.2
Operating Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55/150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	120	$^\circ\text{C/W}$

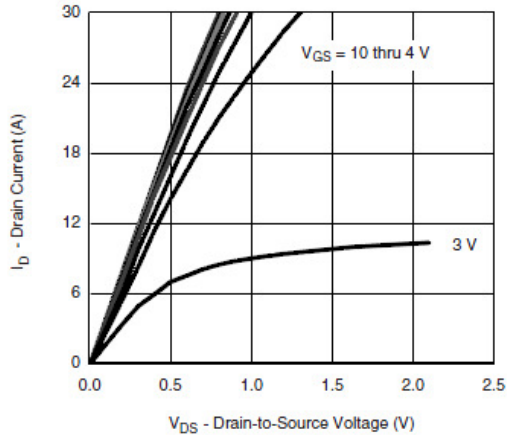
### Electrical Characteristics

( $T_A=25^\circ\text{C}$  Unless otherwise noted)

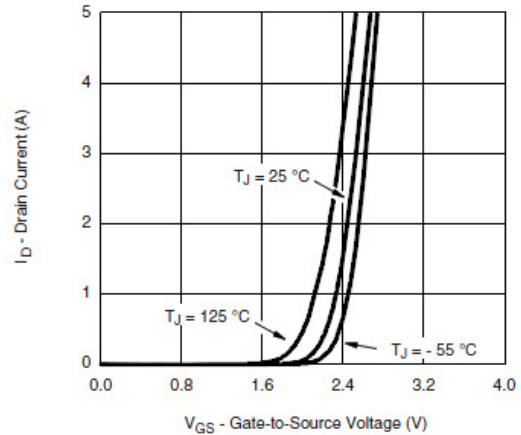
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	$V_{GS}=0V, I_D = -250\mu\text{A}$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D = -250\mu\text{A}$	-1.0		-3.0	
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS} = \pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -40V, V_{GS} = 0V$			-1	uA
		$V_{DS} = -40V, V_{GS} = 0V$ $T_J = 85^\circ\text{C}$			-20	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq -5V, V_{GS} = -10V$	-20			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -6.0A$		40	46	m $\Omega$
		$V_{GS} = -4.5V, I_D = -4.2A$		55	62	
Forward Transconductance	$g_{FS}$	$V_{DS} = -15V, I_D = -5A$		20		S
Diode Forward Voltage	$V_{SD}$	$I_S = -2A, V_{GS} = 0V$		-0.8	-1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS} = -20V, V_{GS} = -4.5V$ $I_D = -3.0A$		13	20	nC
Gate-Source Charge	$Q_{gs}$		4.5			
Gate-Drain Charge	$Q_{gd}$		6.5			
Input Capacitance	$C_{iss}$	$V_{DS} = -20V, V_{GS} = 0V$ $f = 1\text{MHz}$		1100		pF
Output Capacitance	$C_{oss}$		145			
Reverse Transfer Capacitance	$C_{rss}$		115			
Turn-On Time	$t_{d(on)}$	$V_{DD} = -20V, R_L = 4\Omega$ $I_D = -3.0A, V_{GEN} = -4.5V$ $R_G = 1\Omega$		40	80	ns
	$t_r$			55	100	
Turn-Off Time	$t_{d(off)}$			30	60	
	$t_f$			12	20	



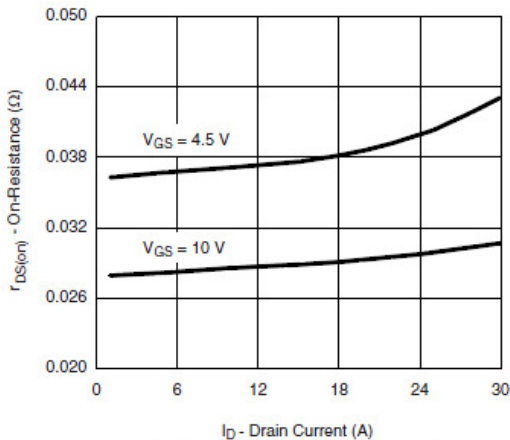
## Typical Characteristics



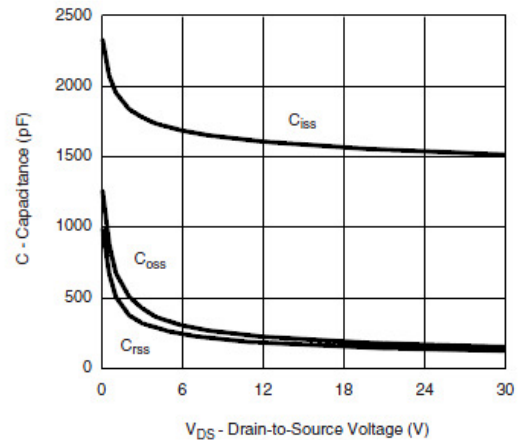
Output Characteristics



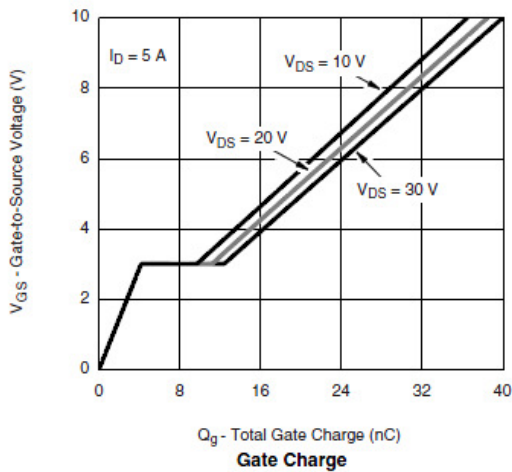
Transfer Characteristics



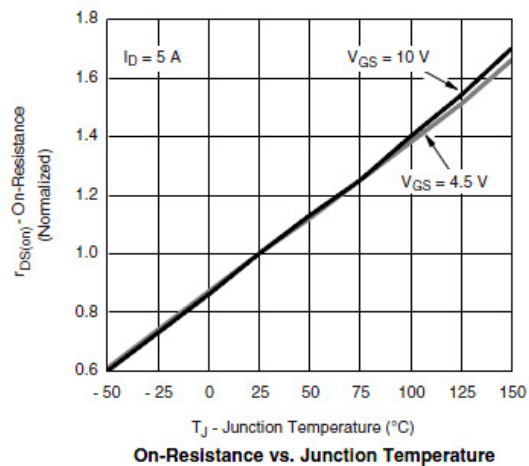
On-Resistance vs. Drain Current



Capacitance



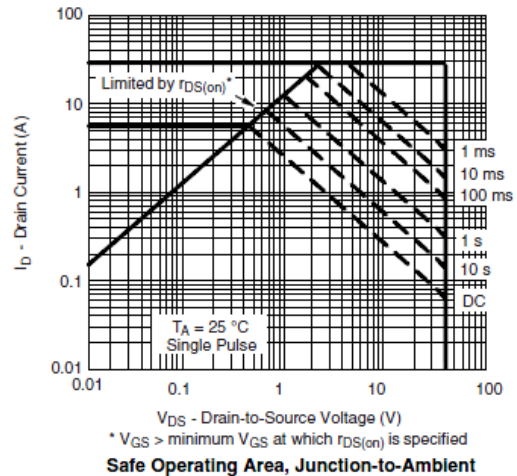
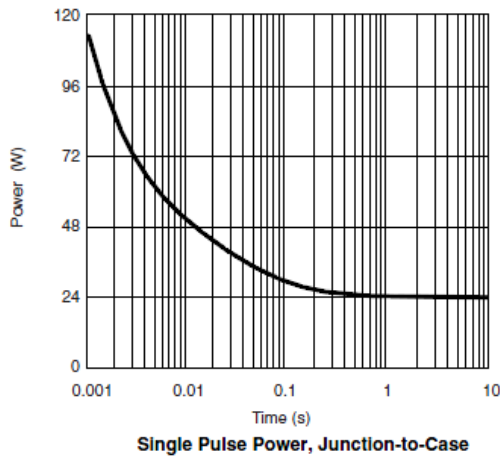
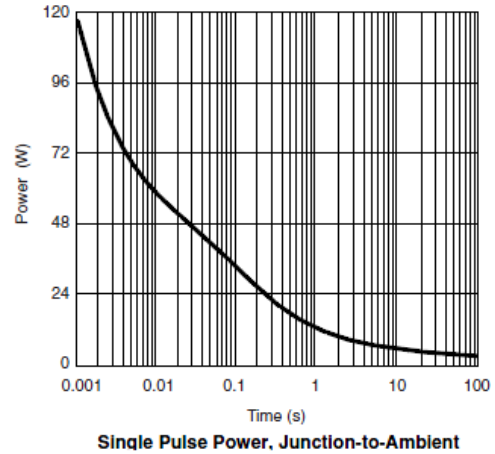
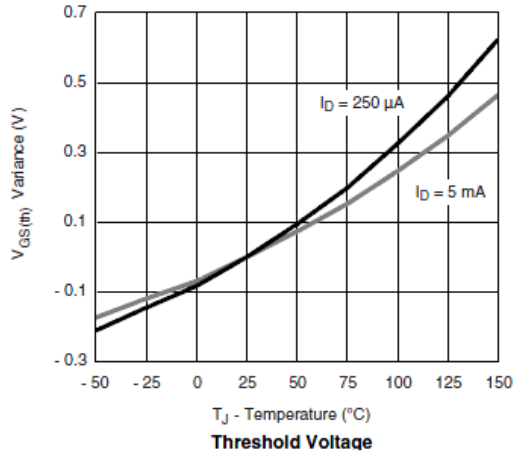
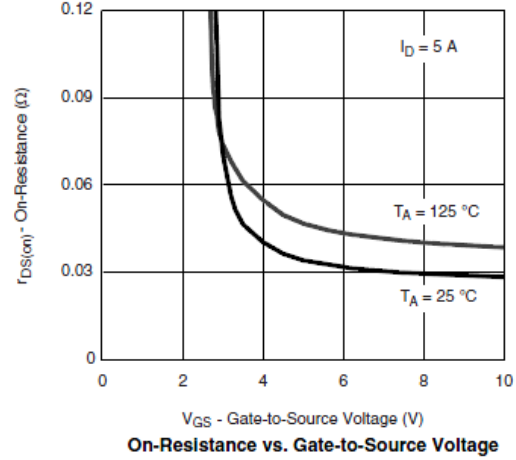
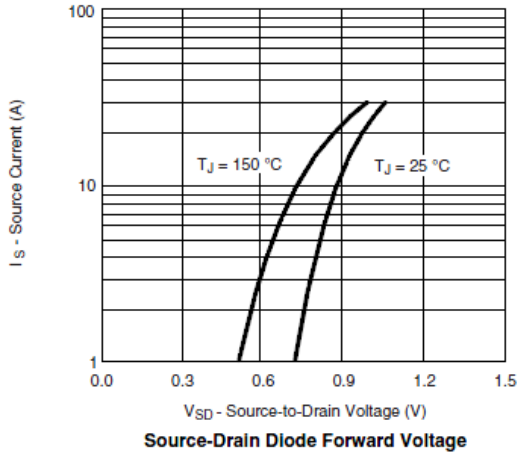
Gate Charge



On-Resistance vs. Junction Temperature

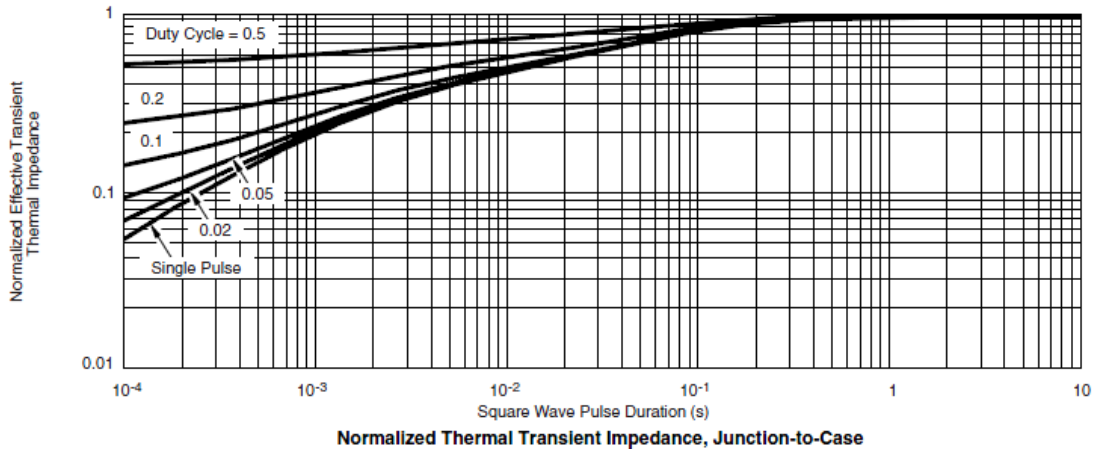
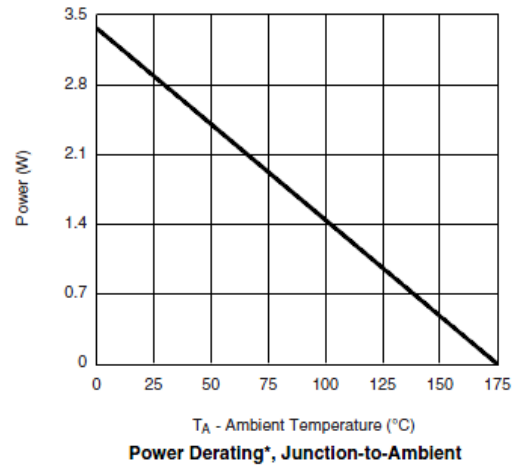
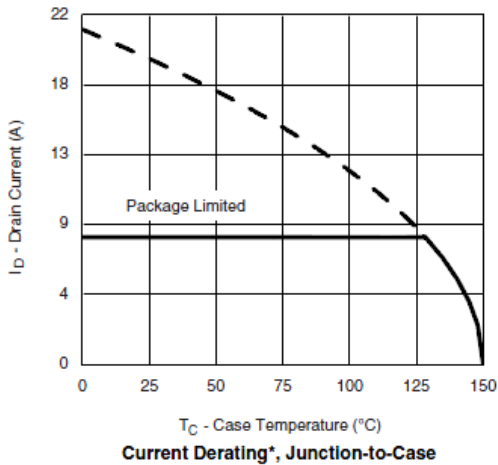
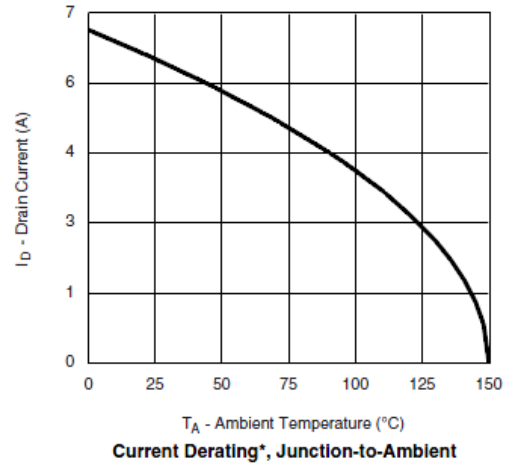
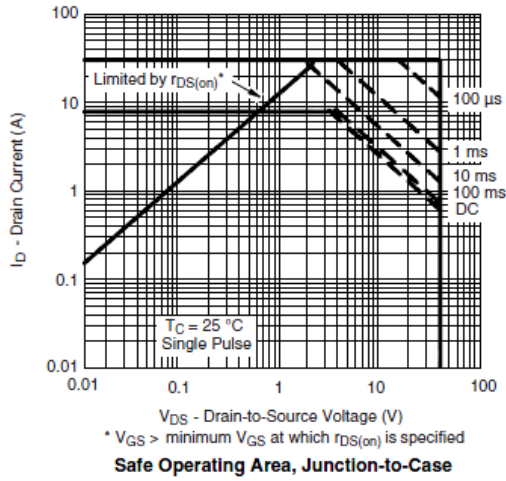


## Typical Characteristics





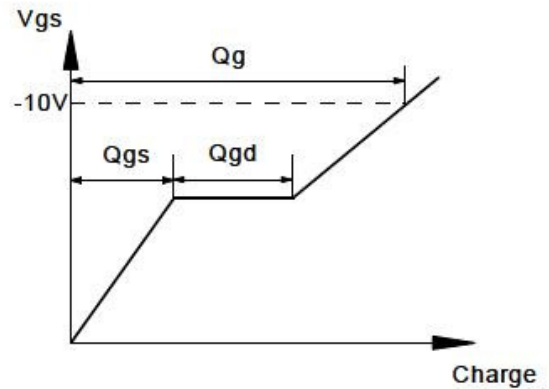
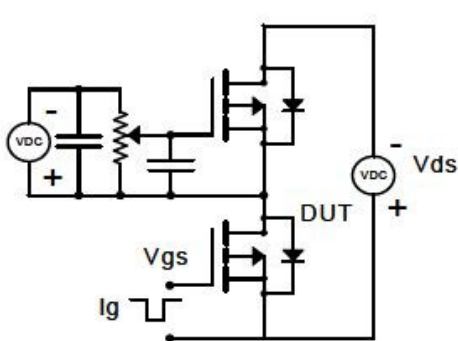
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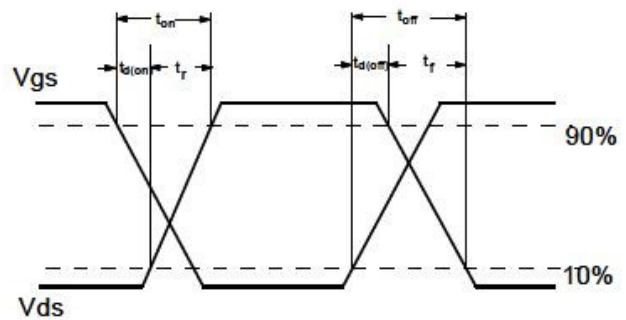
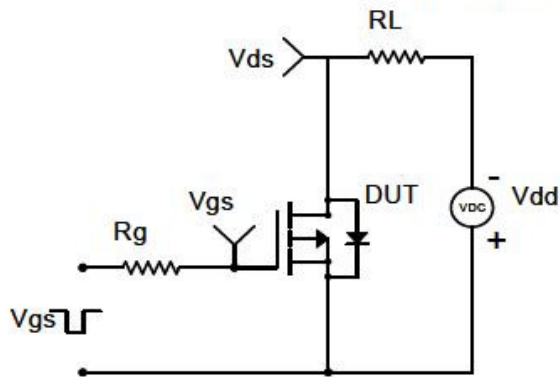


**Typical Characteristics**

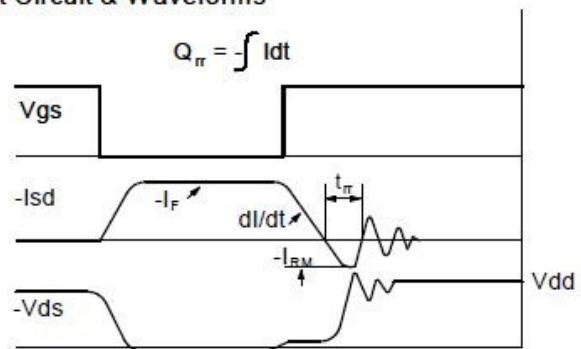
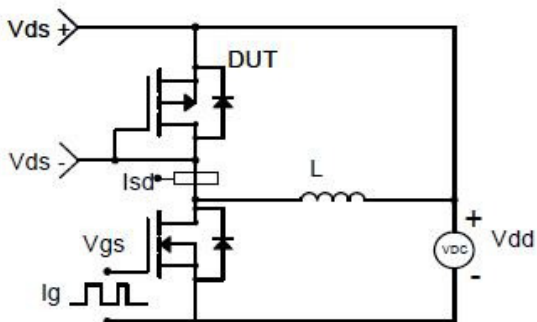
**Gate Charge Test Circuit & Waveform**



**Resistive Switching Test Circuit & Waveforms**

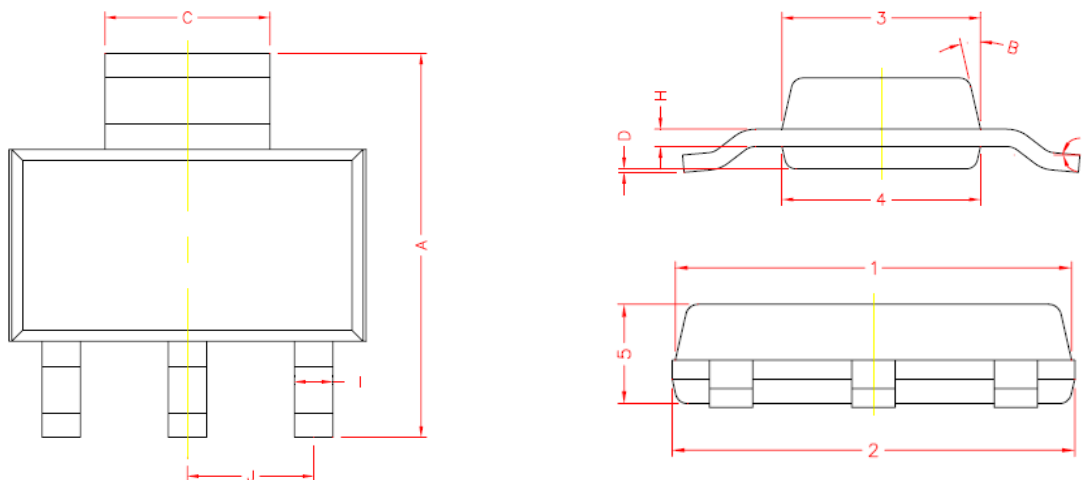


**Diode Recovery Test Circuit & Waveforms**





**Package Information ( SOT-223 )**



REF.	DIMENSIONS	
	Millimeters	
	Min.	Max.
A	6.70	7.30
C	2.90	3.10
D	0.02	0.10
E	0*	10*
I	0.60	0.80
H	0.25	0.35
B	13* TYP.	
J	2.30 REF.	
1	6.30	6.70
2	6.30	6.70
3	3.30	3.70
4	3.30	3.70
5	1.40	1.80

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 2F, No.80, Sec.1, Cheng Kung Rd., Nan Kang Dist., Taipei City 115, Taiwan (R.O.C.)  
 Tel : 886 2) 2651 3928  
 Fax : 886 2) 2786 8483  
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