



General Description

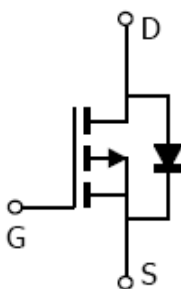
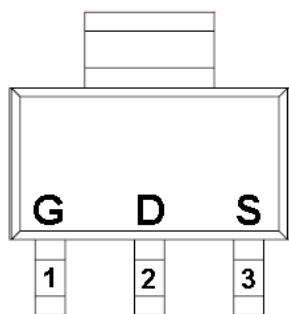
AFP8434S, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

- -20V/-6.0A, $R_{DS(ON)}=50m\Omega@V_{GS}=4.5V$
- -20V/-4.0A, $R_{DS(ON)}=67m\Omega@V_{GS}=2.5V$
- -20V/-2.0A, $R_{DS(ON)}=90m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-223 package design

Pin Description (SOT-223)



Application

- Low Dropout Regulator
- DC/DC converter
- Load switch
- Motor driving

Pin Define

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

Ordering Information

Part Ordering No.	Part Marking	Package	Unit	Quantity
AFP8434SS223RG	8434S	SOT-223	Tape & Reel	2500 EA

※ YY year code

※ WW week code

※ AFP8434SS223RG : 13" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	-20	V
Gate –Source Voltage	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	T _A =25°C -6.0	A
		T _A =70°C -4.0	
Pulsed Drain Current	I _{DM}	-20	A
Continuous Source Current(Diode Conduction)	I _S	-1.5	A
Power Dissipation	P _D	T _A =25°C 2.8	W
		T _A =70°C 1.2	
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	120	°C/W

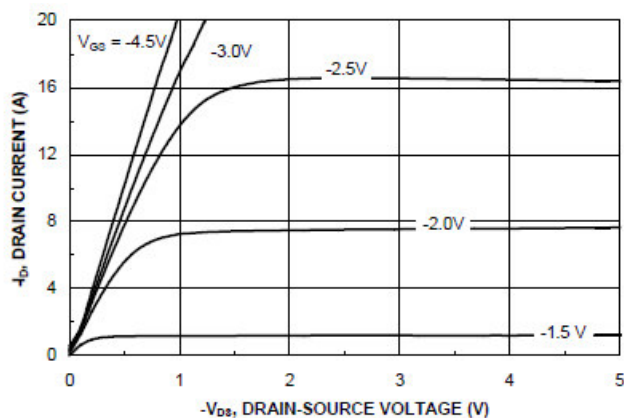
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

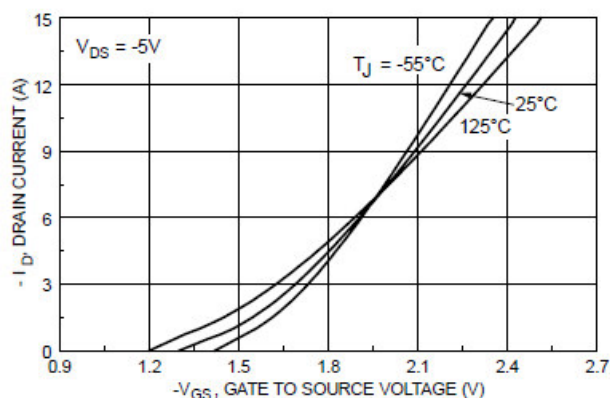
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250uA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.5	-0.7	-1.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1	uA
		V _{DS} =-16V, V _{GS} =0V T _A =85°C			-30	
On-State Drain Current	I _{D(on)}	V _{DS} ≤ -5V, V _{GS} =-4.5V	-20			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-6.0A		40	50	mΩ
		V _{GS} =-2.5V, I _D =-4.0A		52	67	
		V _{GS} =-1.8V, I _D =-2.0A		75	90	
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-6.0A		7		S
Diode Forward Voltage	V _{SD}	I _S =-2.0A, V _{GS} =0V		-0.7	-1.3	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V I _D ≡-6.0A		12	20	nC
Gate-Source Charge	Q _{gs}			1.9		
Gate-Drain Charge	Q _{gd}			3.2		
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V f=1MHz		1185		pF
Output Capacitance	C _{oss}			235		
Reverse Transfer Capacitance	C _{rss}			100		
Turn-On Time	t _{d(on)}	V _{DD} =-5V, V _{GEN} =-4.5V I _D ≡-1.0A, R _G =6Ω		10	20	ns
	t _r			15	30	
Turn-Off Time	t _{d(off)}			45	90	
	t _f			25	50	



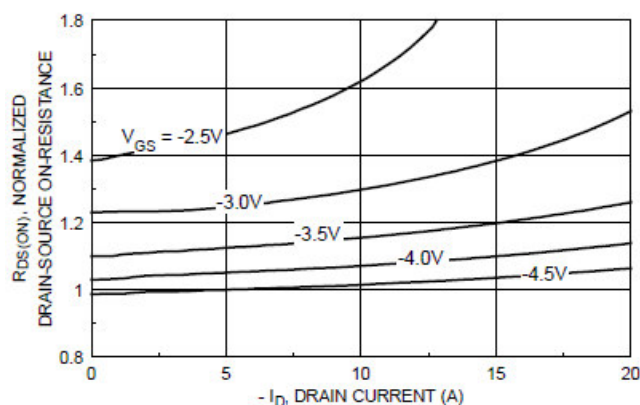
Typical Characteristics



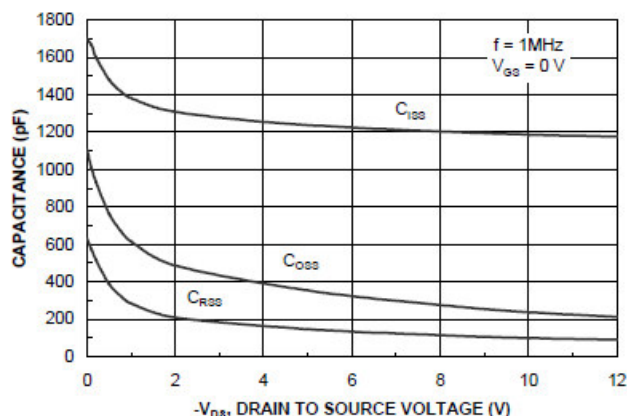
On-Region Characteristics



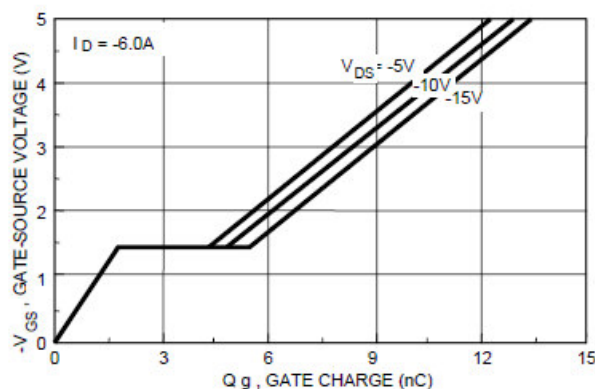
Transfer Characteristics



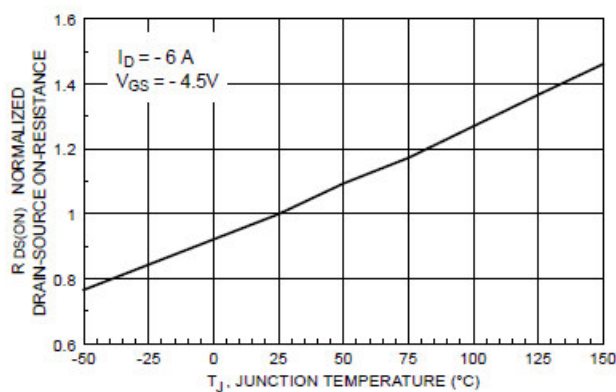
On-Resistance Variation with
Drain Current and Gate Voltage



Capacitance Characteristics



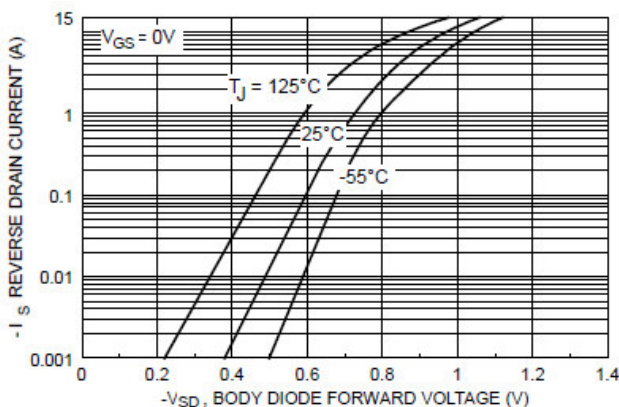
Gate Charge Characteristics



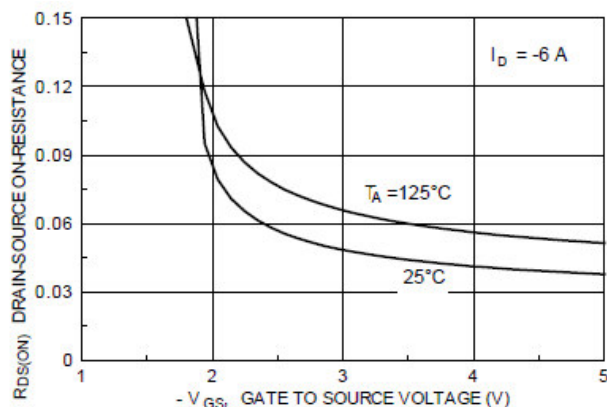
On-Resistance Variation
with Temperature



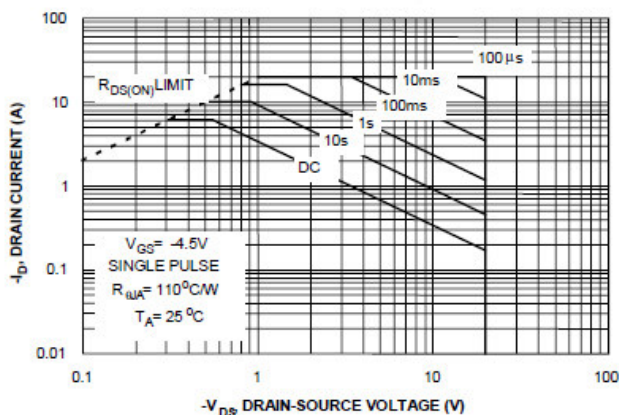
Typical Characteristics



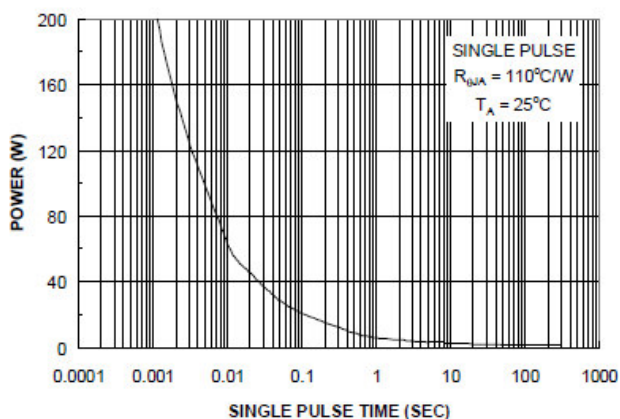
Body Diode Forward Voltage Variation
with Source Current and Temperature



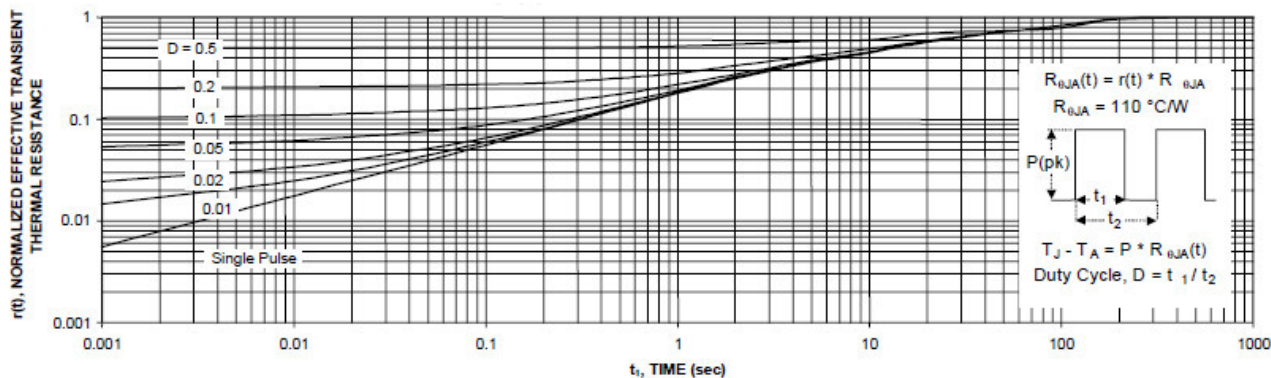
On-Resistance Variation with
Gate-to-Source Voltage



Maximum Safe Operating Area



Single Pulse Maximum
Power Dissipation

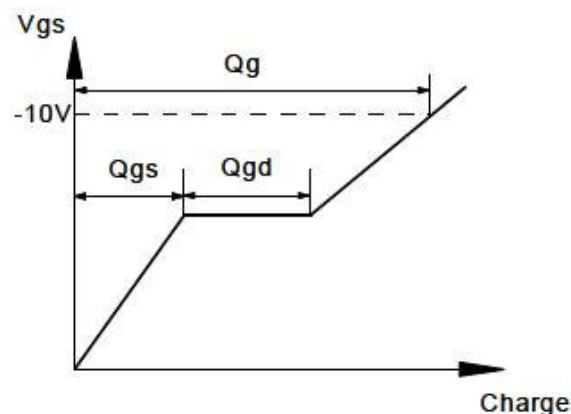
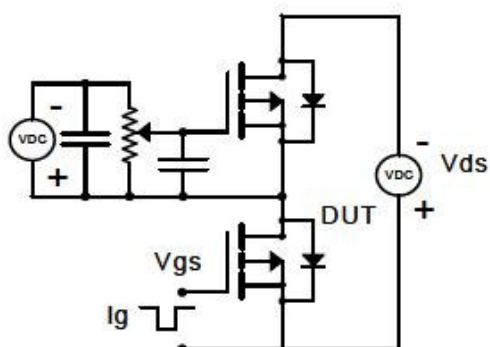


Transient Thermal Response Curve

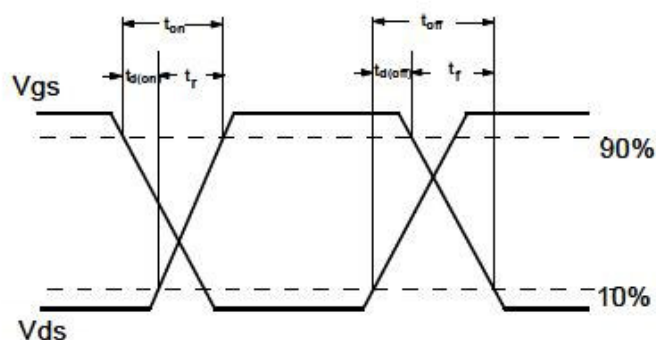
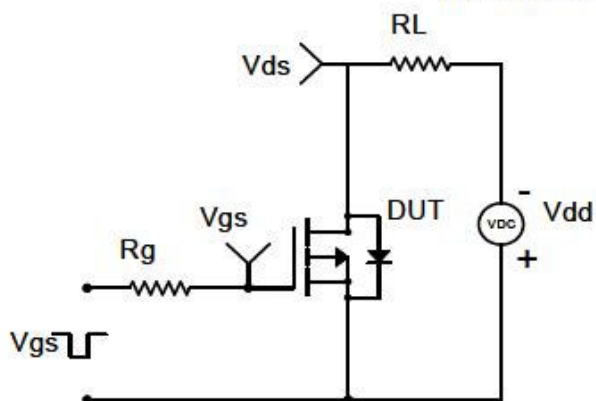


Typical Characteristics

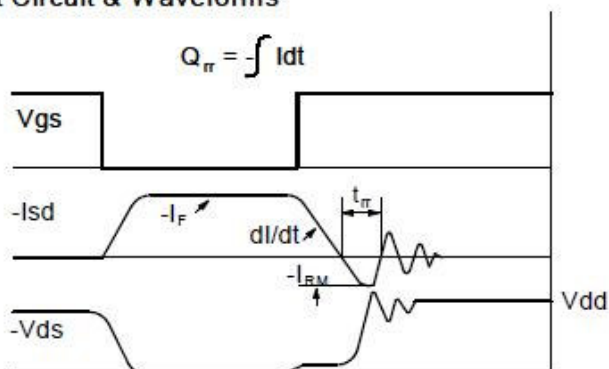
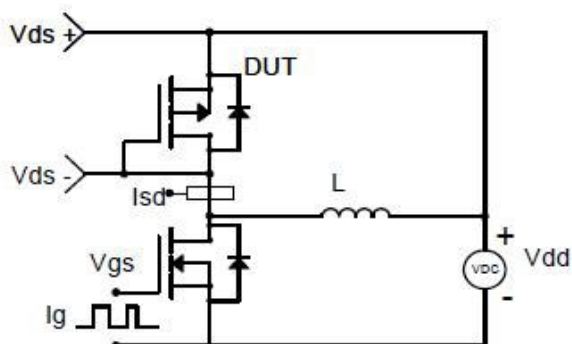
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

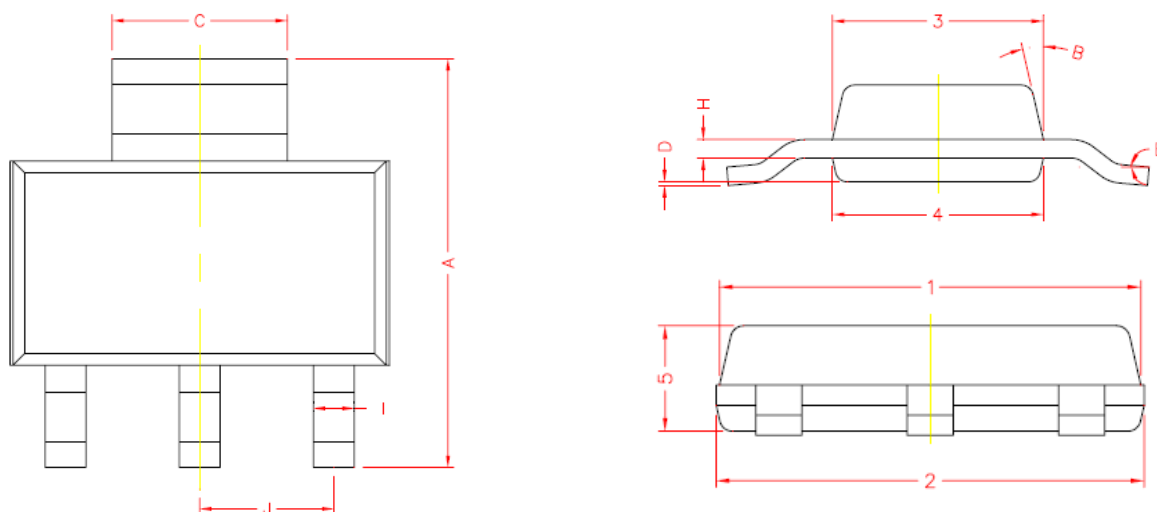


Diode Recovery Test Circuit & Waveforms





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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