ACE14935M
Dual P-Channel 30-V (D-S) MOSFET

Description

These miniature surface mount MOSFETs utilize High Cell Density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

Features

- Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Miniature SOP-8 Surface Mount Package Saves Board Space
- High power and current handling capability
- Extended VGS range (±25) for battery pack applications

Product Summary		
V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D(A)
-30	0.021 @ V_{GS} = -10V	-7.8
	0.035 @ V_{GS} = -4.5V	-6.0

Absolute Maximum Ratings

Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current [a]	T_A=25℃	I_D	-7.8	A
	T_A=70℃		-6.2	
Pulsed Drain Current [b]		I_{DM}	±30	A
Continuous Source Current (Diode Conduction) [a]		I_S	-1.7	A
Power Dissipation [a]	T_A=25℃	P_D	2.0	W
	T_A=70℃		1.3	
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

Thermal Resistance Ratings				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient [a]	t <= 10 sec	$R_{\theta JA}$	62.5	°C/W
	Steady State		110	

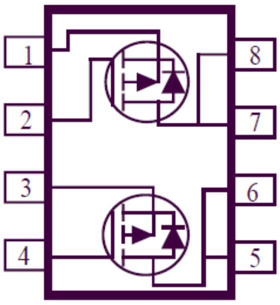
Notes

a. Surface Mounted on 1” x 1” FR4 Board.

b. Pulse width limited by maximum junction temperature

Packaging Type

SOP-8



Ordering information

ACE14935M XX + H

- Halogen - free
- Pb - free
- FM：SOP-8

Electrical Characteristics

T_A=25℃, unless otherwise specified.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = -250 uA	-1		-3	V
Gate-Body Leakage	I_{GSS}	V_{DS}= 0 V, V_{GS}= ±25V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-24V, V_{GS} = 0 V			-1	uA
		V_{DS} = -24V, V_{GS} = 0 V, T_J = 55°C			-5	
On-State Drain Current	$I_{D(on)}$	V_{DS} = -5 V, V_{GS} = -10 V	-40			A
Drain-Source On-Resistance	$r_{DS(on)}$	V_{GS} = -10 V, I_D =-7.8 A		19	21	mΩ
		V_{GS} = -4.5 V, I_D = -6.0A		28	35	
Forward Transconductance	g_{fs}	V_{DS} = -10V, I_D = -7.8A		22		S
Diode Forward Voltage	V_{SD}	I_S=1.7A, V_{GS} = 0 V		-0.7	-1.2	V
Dynamic						
Total Gate Charge	Qg	V_{DS}= -15 V, V_{GS} = -5V, I_D= -7.8 A		15		nC
Gate-Source Charge	Qgs			5.2		
Gate-Drain Charge	Qgd			5.8		
Turn-On Delay Time	td(on)	V_{DD}= -15V, R_L=6Ω, I_D = -1 A, V_{GEN}= -10 V		15		ns
Rise Time	tr			12		
Turn-Off Delay Time	td(off)			62		
Fall Time	tf			46		

Note :

a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing

Typical Performance Characteristics

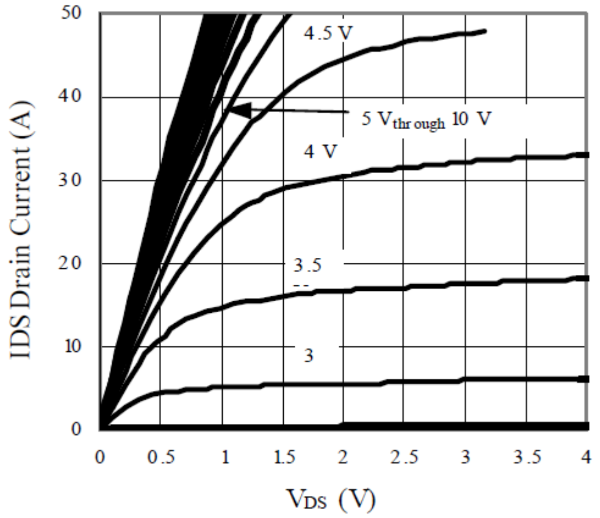


Figure 1. Output Characteristics

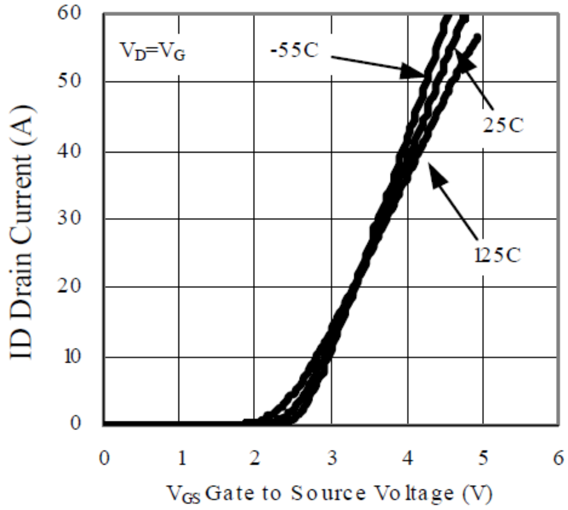


Figure 2. Transfer Characteristics

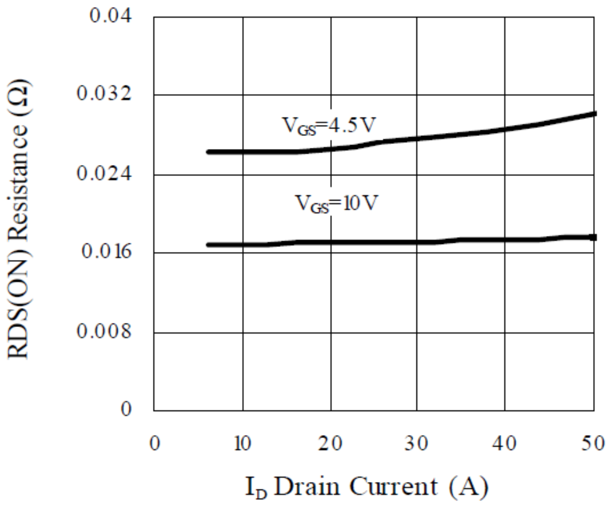


Figure 3. On-Resistance vs. Drain Current

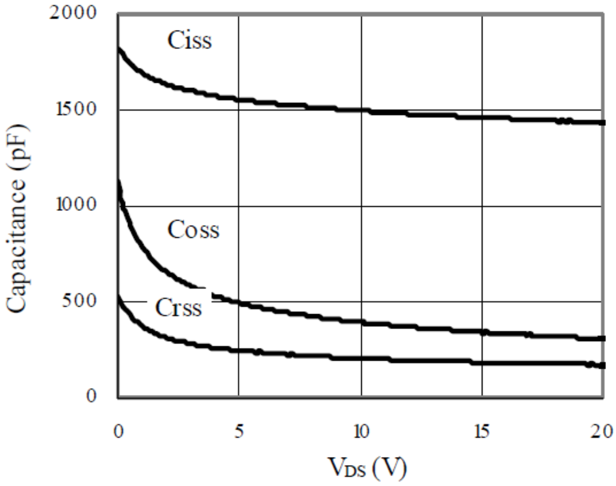


Figure 4. Capacitance

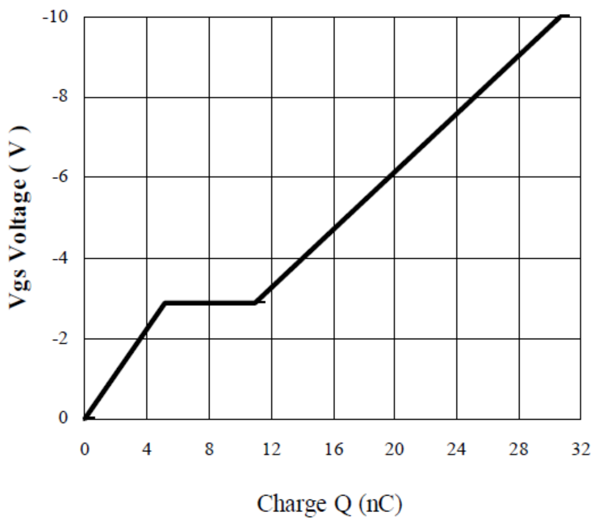


Figure 5. Gate Charge

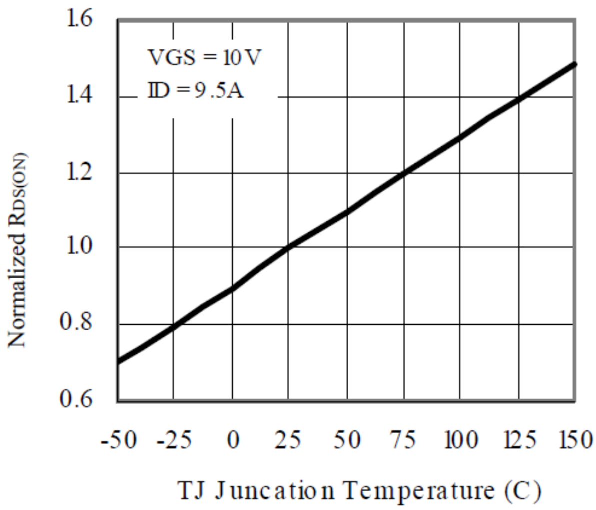


Figure 6. On-Resistance vs. Junction Temperature

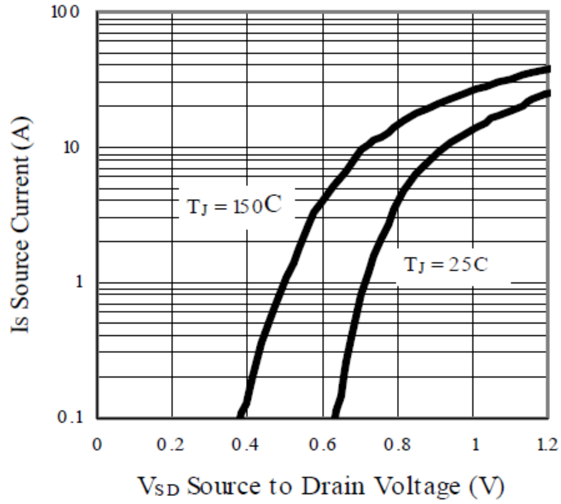


Figure 7. Source-Drain Diode Forward Voltage

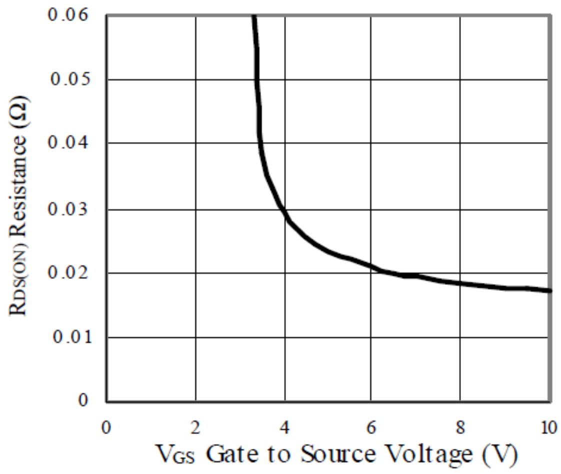


Figure 8. On-Resistance vs. Gate-to-Source Voltage

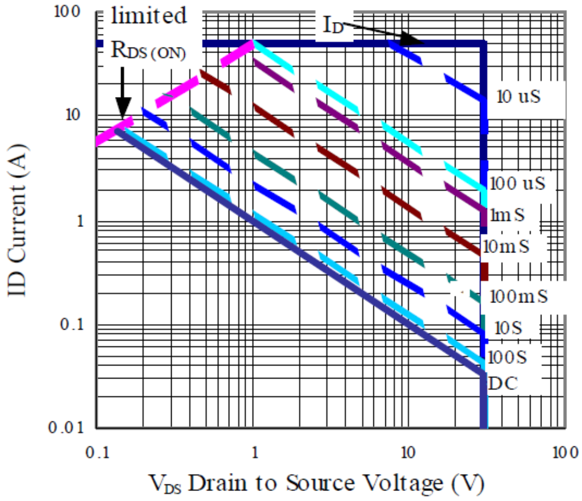


Figure 9. Maximum Safe Operating Area

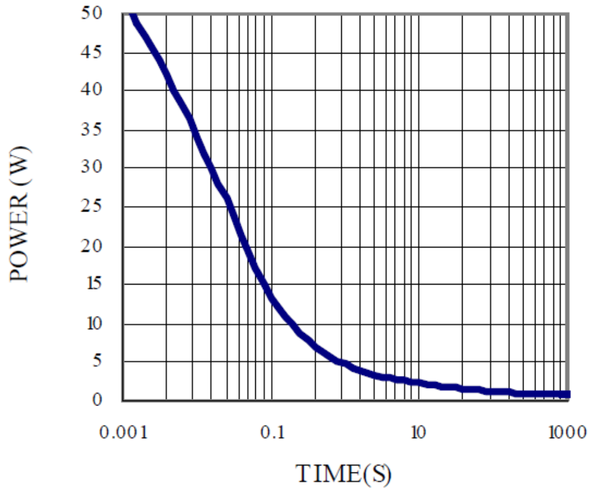


Figure 10. Single Pulse Maximum Power Dissipation

Normalized Thermal Transient Junction to Ambient

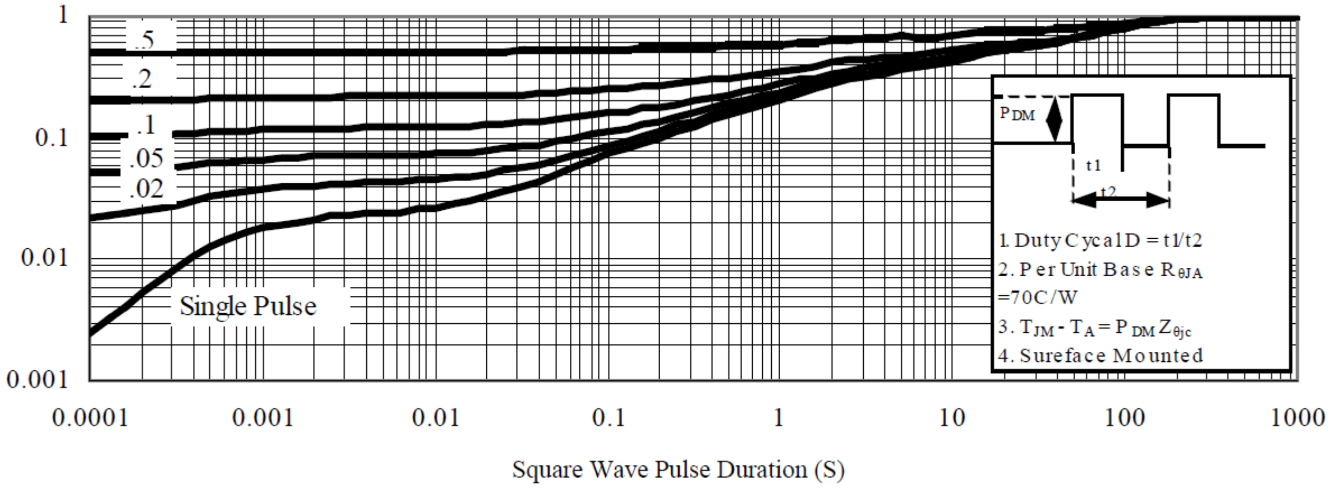
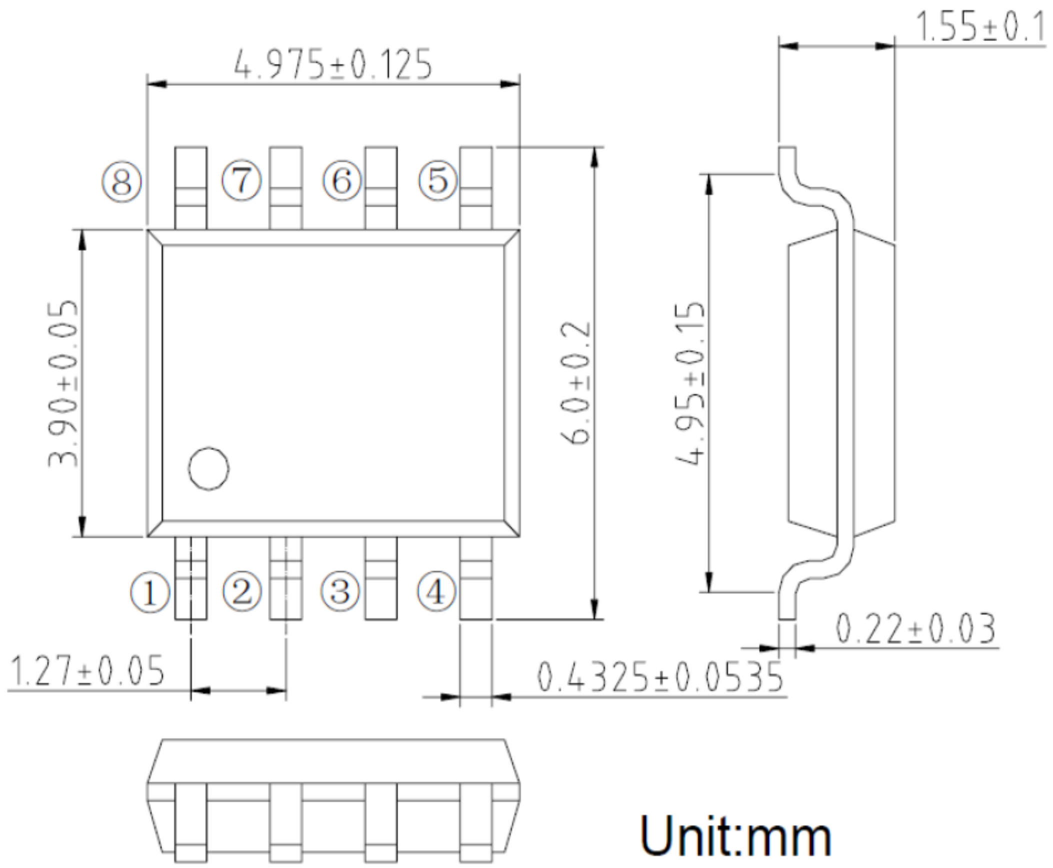


Figure 11. Transient Thermal Response Curve

Packing Information

SOP-8



Notes

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1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.