ACE11032A

N-Channel Enhancement Mode MOSFET

Description

The ACE11032A is the N-Channel enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching, low in-line power loss and resistance to transients are needed.

Features

- 30V/0.95A,$R_{DS(ON)}$=550mΩ@V_{GS}=4.5V
  30V/0.75A,$R_{DS(ON)}$=650mΩ@V_{GS}=2.5V
  30V/0.65A,$R_{DS(ON)}$=850mΩ@V_{GS}=1.8V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability

Applications

- Drivers : Relays/Solenoids/Lamps/Hammers
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

Absolute Maximum Ratings

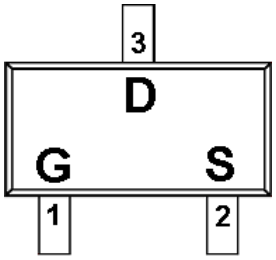
(T_A=25℃ Unless otherwise noted)

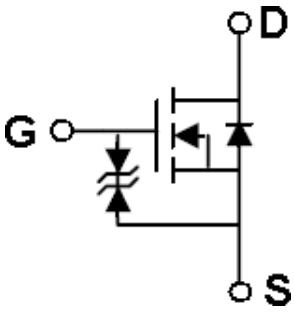
Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Drain Current (T_J=150℃)	T_A=25℃	I_D	0.65	A
	T_A=80℃		0.45	
Pulsed Drain Current(*)		I_{DM}	0.95	A
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	375	°C /W
Power Dissipation	T_A=25℃	P_D	1.35	A
Operating Junction Temperature		T_J	-55~150	°C
Storage Temperature Range		T_{STG}	-55~150	°C

(*) Pulse width limited by safe operating area

Packaging Type

SOT-523





Pin Description

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

Ordering information

ACE11435A XX + H

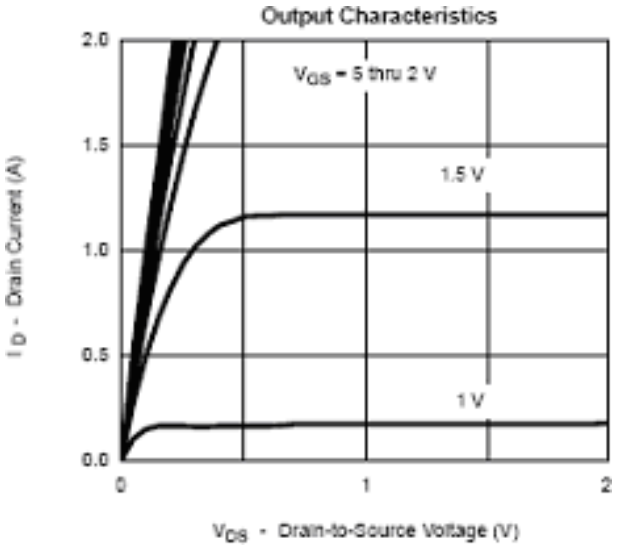
- Halogen - free
- Pb - free
- KM: SOT-523

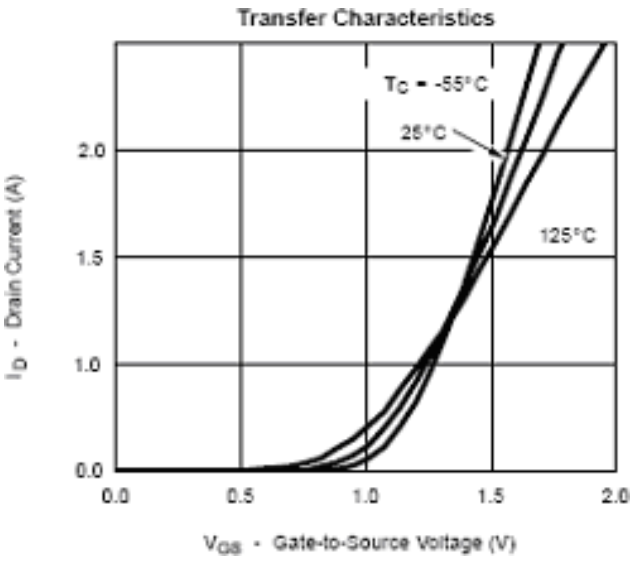
Electrical Characteristics

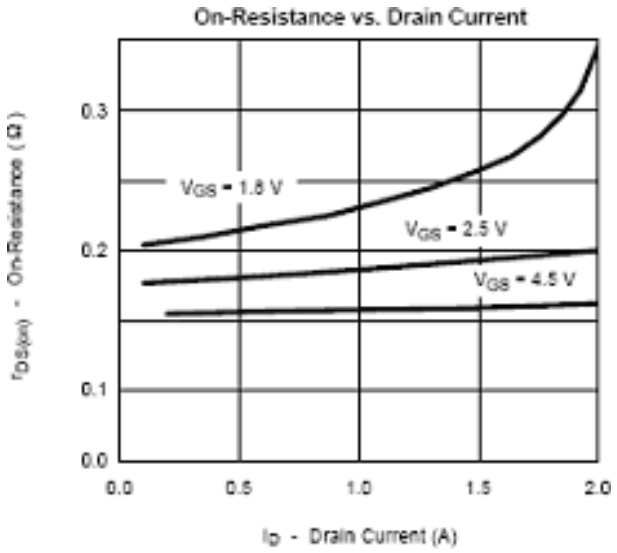
T_A=25℃, unless otherwise noted.

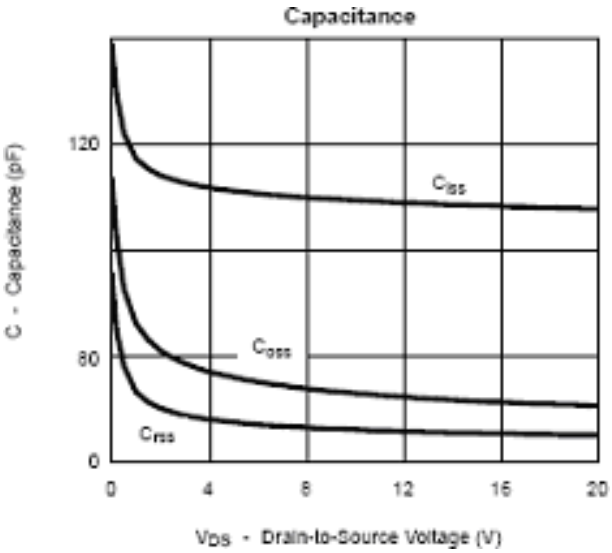
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.35		1.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±30	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=48V, V_{GS}=0V, T_J=55℃			30	uA
		V_{DS}=48V, V_{GS}=0V, T_J=55℃			100	
On-State Drain Current	$I_{D(on)}$	V_{DS}≥ 4.5V,V_{GS} =5V	0.7			A
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=0.95A		0.45	0.55	Ω
		V_{GS}=2.5V, I_D=0.75A		0.50	0.65	
		V_{GS}=1.8V, I_D=0.65A		0.70	0.85	
Forward Trans Conductance	$gfs_{(1)}$	V_{DS}=10V, I_D=0.4A		1.0		S
Diode Forward Voltage	$V_{SD(1)}$	V_{GS}=0V, I_S=0.15A		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=10V, V_{GS}=4.5V, I_D≡0.6A		1.2	1.5	nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.3		
Input Capacitance	Ciss	V_{DS} = 10V, f = 1 MHz, V_{GS} = 0V		7.2		pF
Output Capacitance	Coss			17		
Reverse Transfer Capacitance	Crss			1.6		
Turn-On Time	td(on)	V_{DD}=10V, R_L=10Ω, I_D≡0.5A, V_{GEN}=4.5V , R_G=6Ω		5	10	ns
	tr			8	15	
Turn-Off Time	td(off)			10	18	
	tf			1.2	2.8	

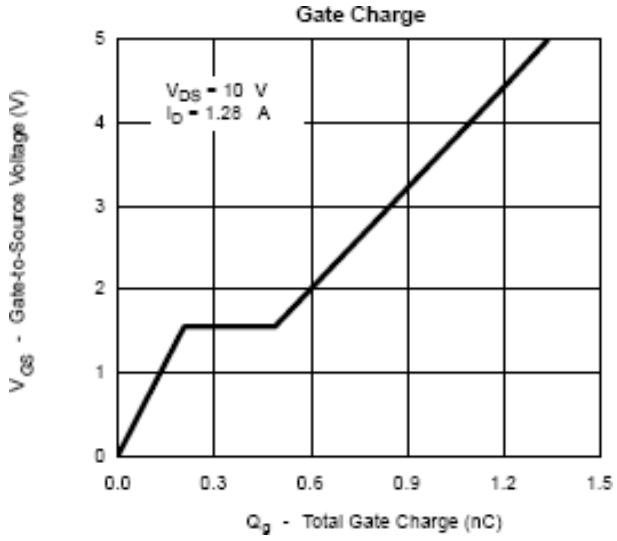
Typical Performance Characteristics

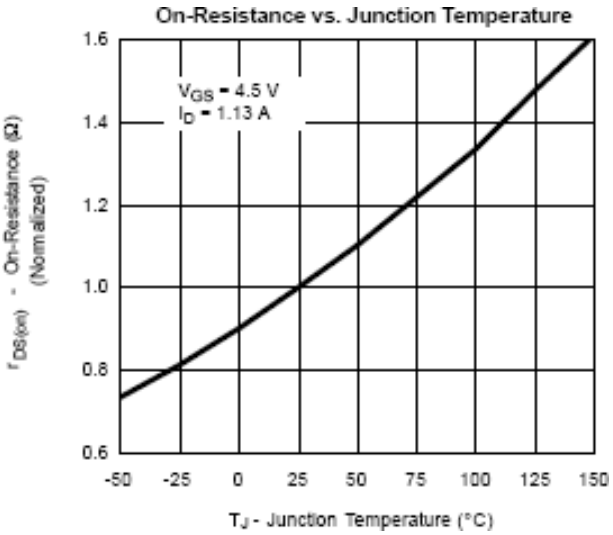




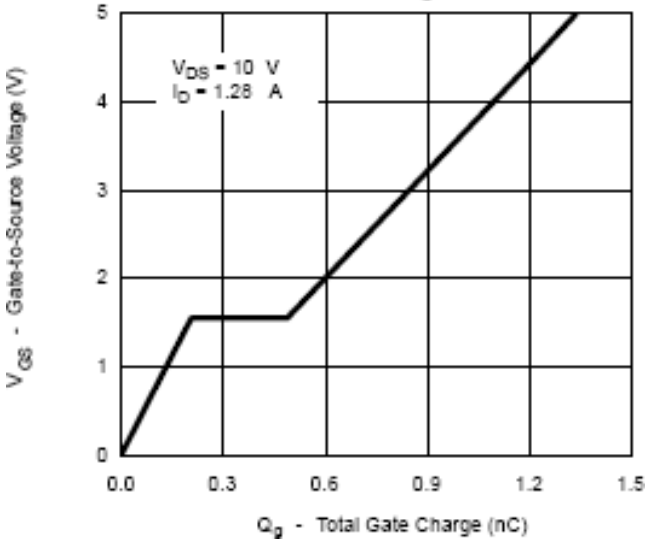




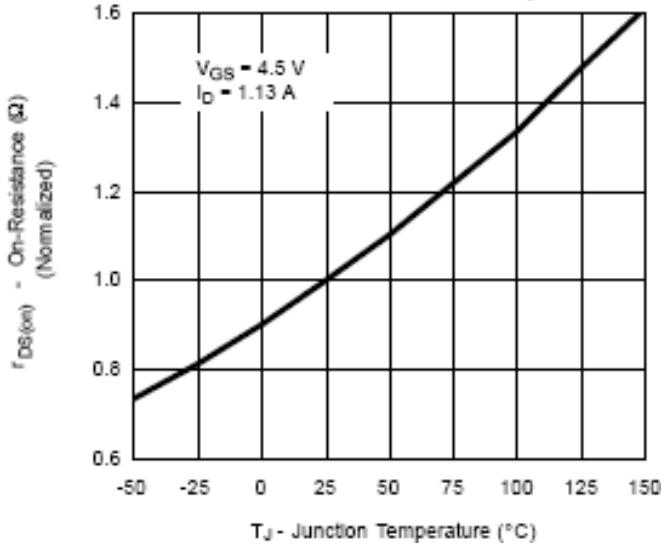




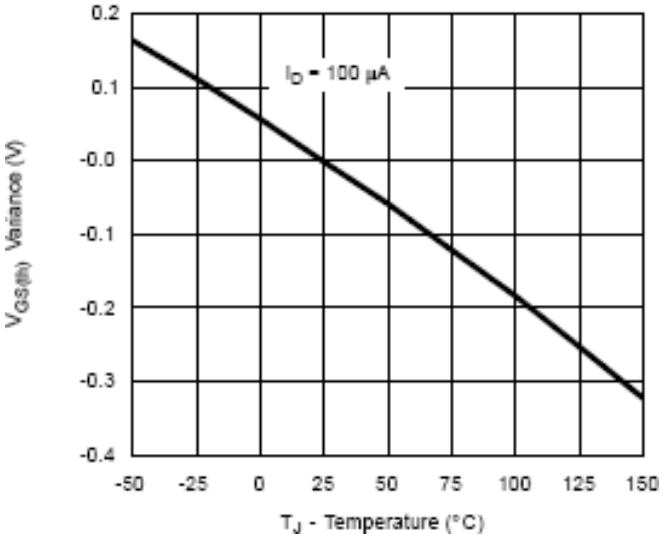
Gate Charge



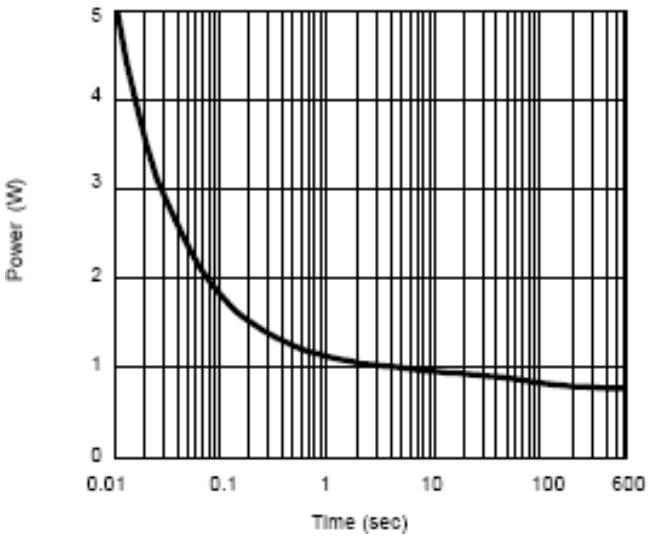
On-Resistance vs. Junction Temperature



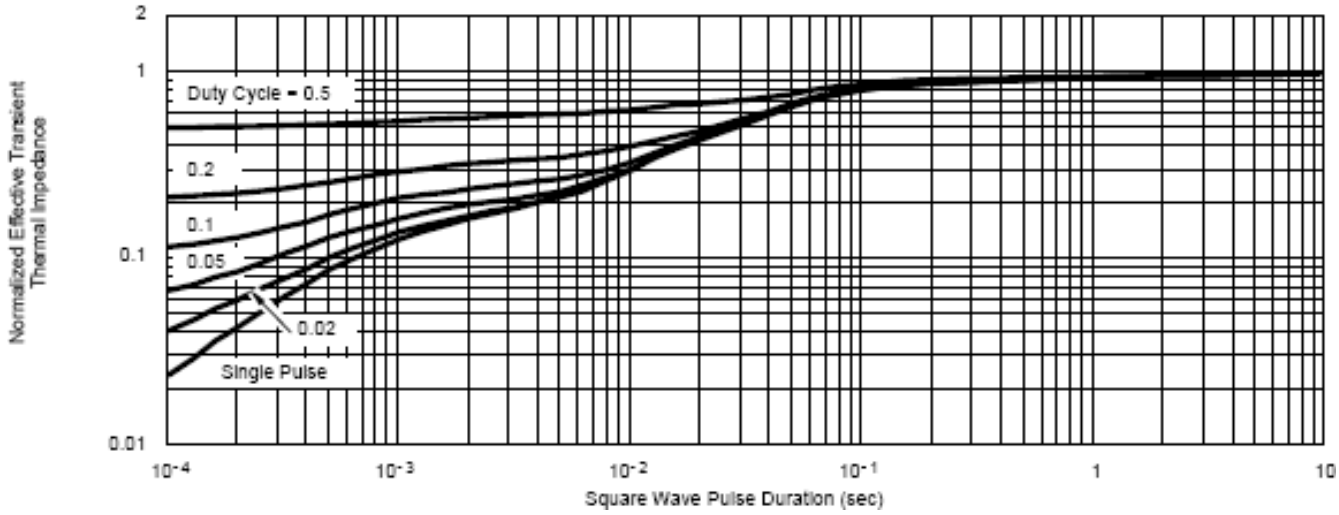
Threshold Voltage



Single Pulse Power, Junction-to-Ambient

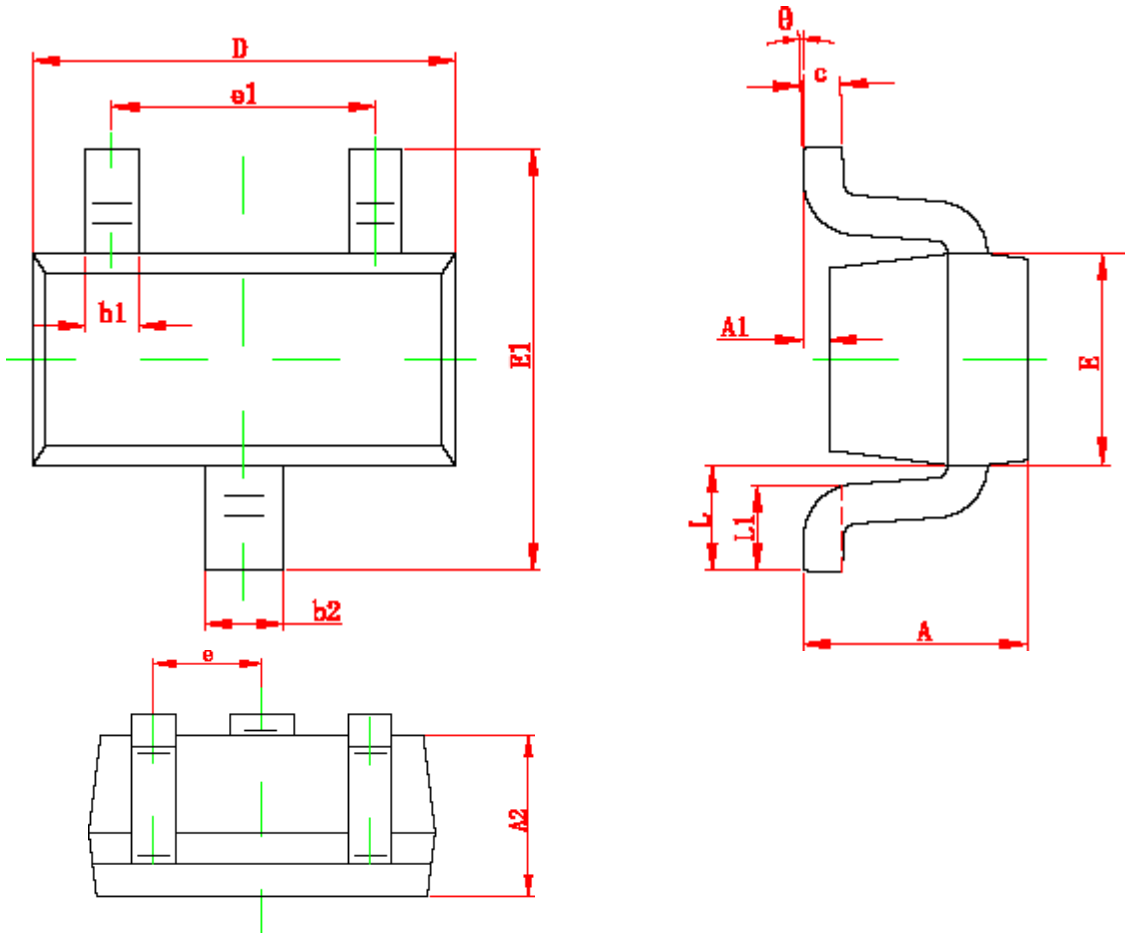


Normalized Thermal Transient Impedance, Junction-to-Foot



Packing Information

SOT-523



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.325	0.010	0.013
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.750	0.850	0.030	0.033
E1	1.450	1.750	0.057	0.069
e	0.500 TYP		0.020 TYP	
e1	0.900	1.100	0.035	0.043
L	0.550 REF		0.022 REF	
L1	0.280	0.440	0.011	0.017
θ	0°	4°	0°	4°

Notes

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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.