ACE1551A

N-Channel Enhancement Mode MOSFET

Description

The ACE1551A 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

- N-Channel
  20V/0.95A,$R_{DS(ON)}$=380mΩ@V_{GS}=4.5V
  20V/0.75A,$R_{DS(ON)}$=450mΩ@V_{GS}=2.5V
  20V/0.65A,$R_{DS(ON)}$=800mΩ@V_{GS}=1.8V
  20V/0.65A,$R_{DS(ON)}$=1000mΩ@V_{GS}=1.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

Applications

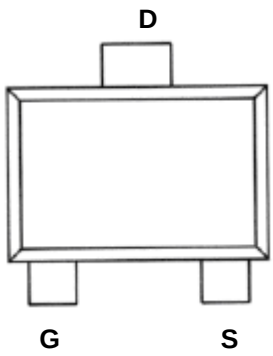
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

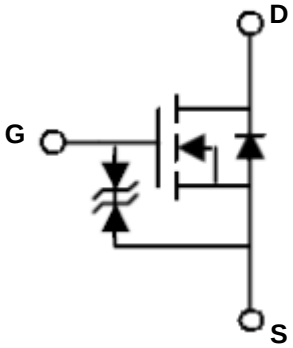
Absolute Maximum Ratings

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Drain Current (TJ=150℃)	T_A=25℃	I_D	0.65	A
Pulsed Drain Current		I_{DM}	4	A
Continuous Source Current (Diode Conduction)		I_S	0.3	A
Power Dissipation	T_A=25℃	P_D	0.15	W
Operating Junction Temperature / Storage Temperature Range		T_J/T_{STG}	-55/150	°C

Packaging Type

SOT-723





Ordering information

ACE1551A JM + H

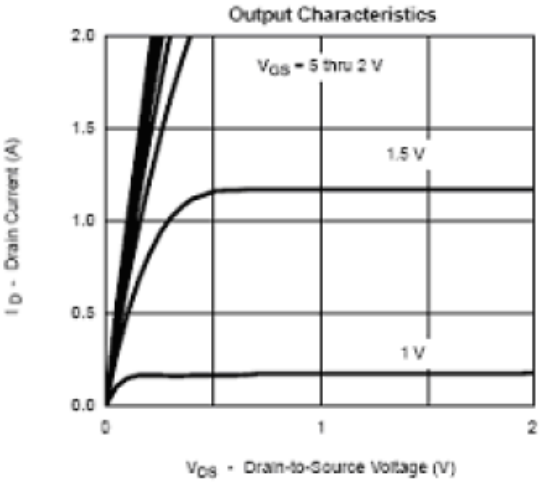
- Halogen - free
- Pb - free
- JM : SOT-723

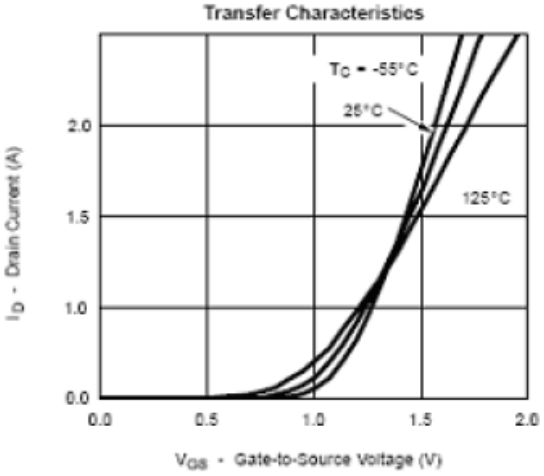
Electrical Characteristics

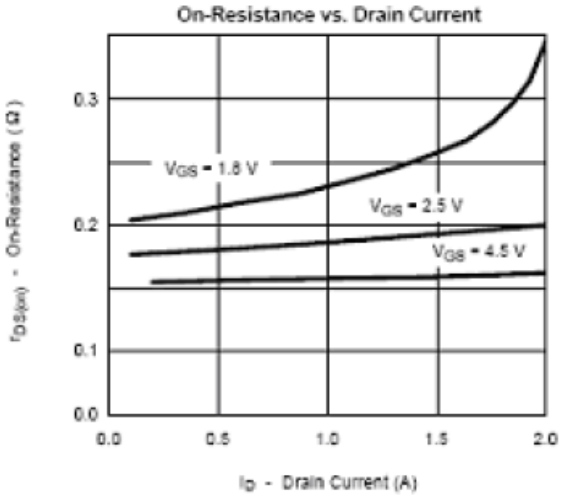
T_A=25℃, unless otherwise specified.

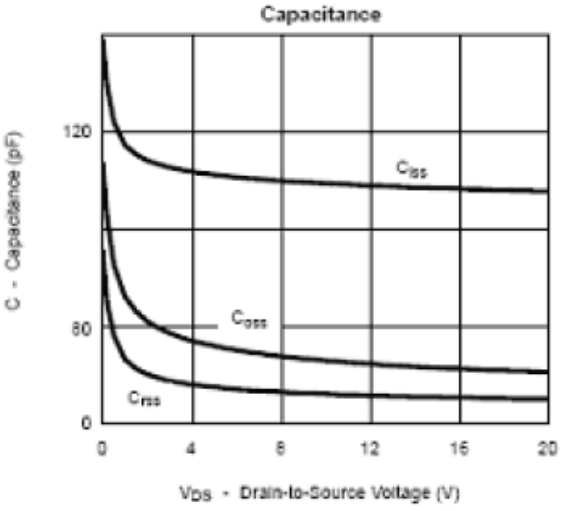
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250 uA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250uA	0.35		1.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			30	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	uA
		V_{DS}=20V, V_{GS}=0V, T_J=55℃			5	
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		0.26	0.38	Ω
		V_{GS}=2.5V, I_D=0.75A		0.32	0.45	
		V_{GS}=1.8V, I_D=0.65A		0.42	0.8	
		V_{GS}=1.5V, I_D=0.65A		0.5	1.0	
Forward Transconductance	gfs	V_{DS}=10V,I_D=0.4A		1.0		S
Diode Forward Voltage	V_{SD}	I_{SD}=0.15A, V_{GS}=0V		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		
Turn-On Time	td(on)	V_{GEN}=4.5V, I_D=0.5A, V_{DD}=10V, R_G=6Ω, R_L=10Ω		5	10	nS
	tr			8	15	
Turn-Off Time	td(off)			10	18	
	tf			1.2	2.8	

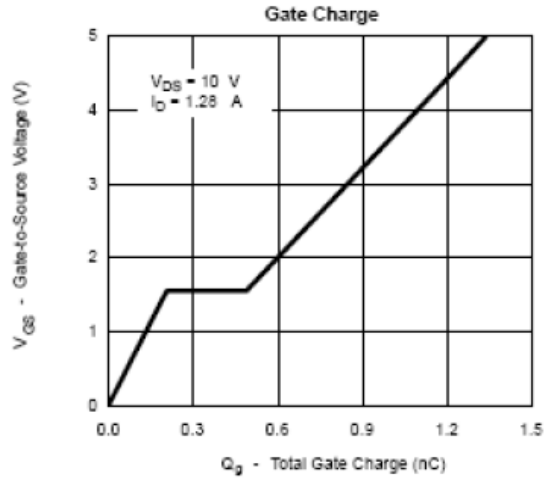
Typical Performance Characteristics

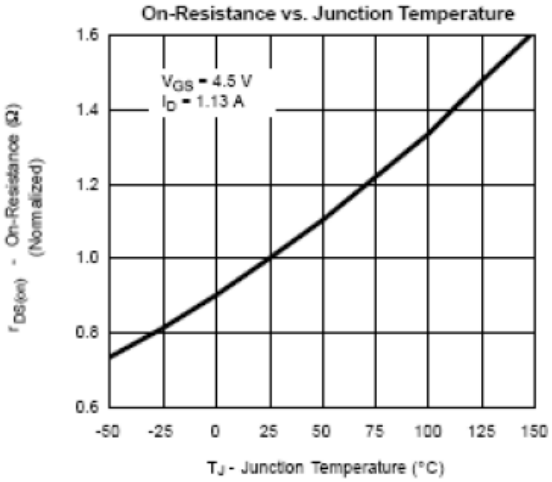




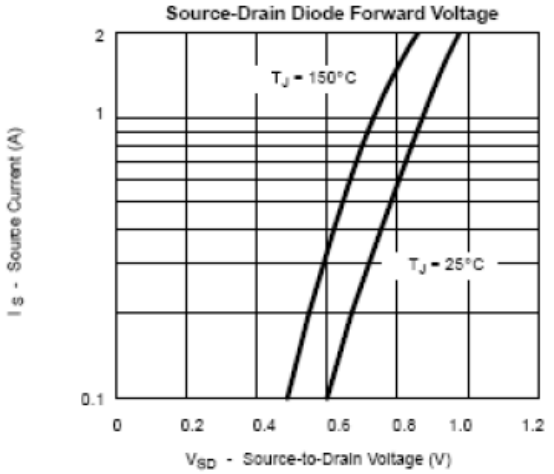


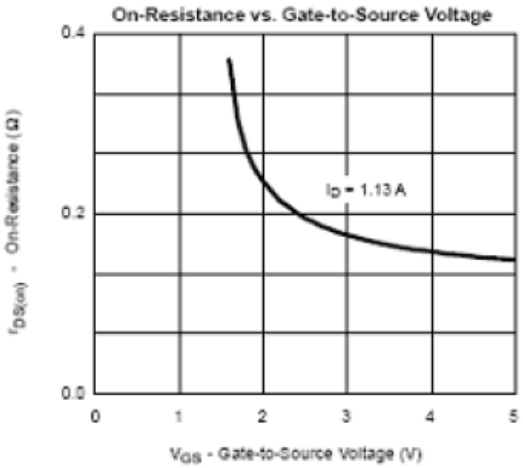


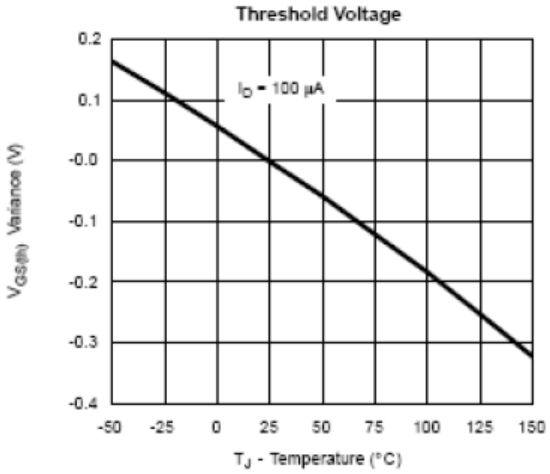


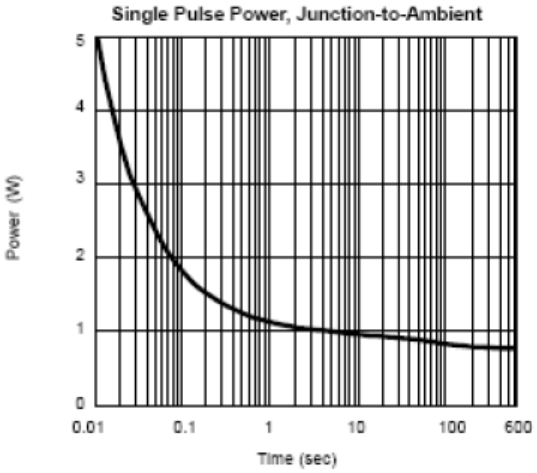


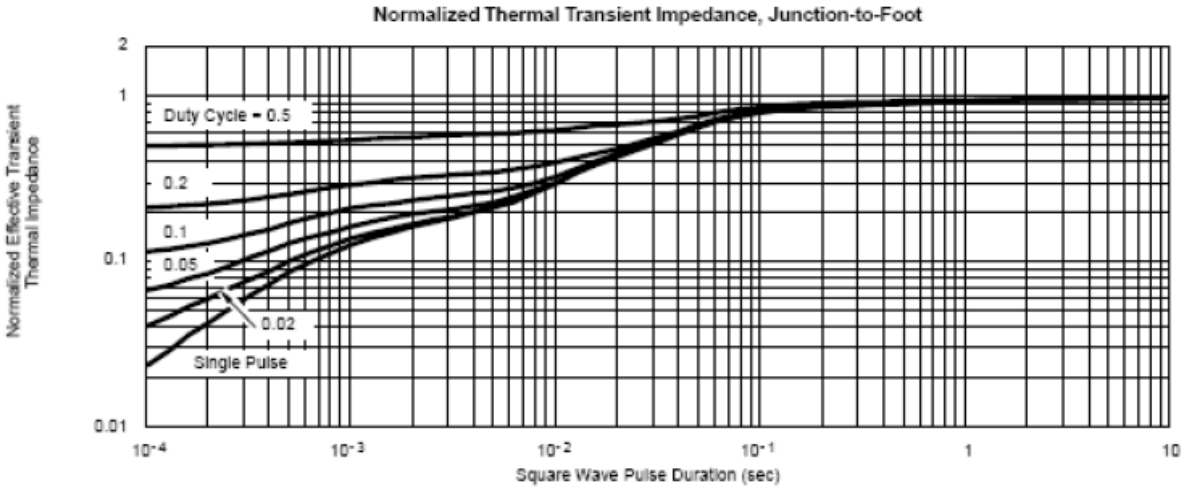
Typical Performance Characteristics





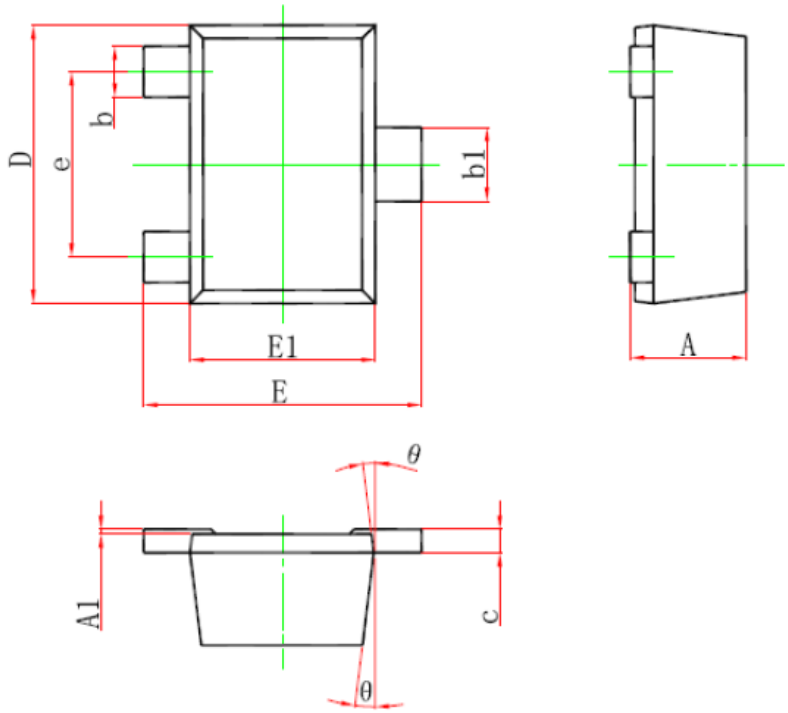






Packing Information

SOT-723



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A		0.500		0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c		0.150		0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

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.

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