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

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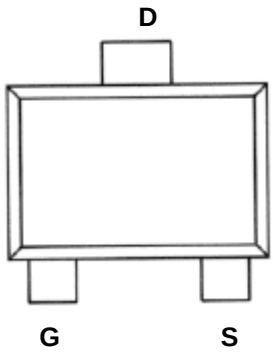
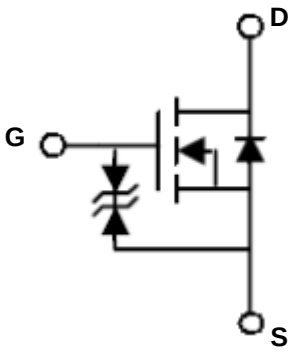
Packaging Type

SOT-723





Ordering information

ACE1551A XX + H

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

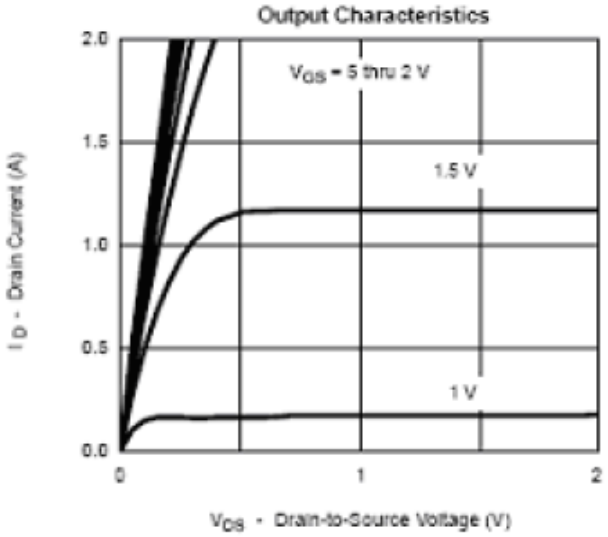
Electrical Characteristics

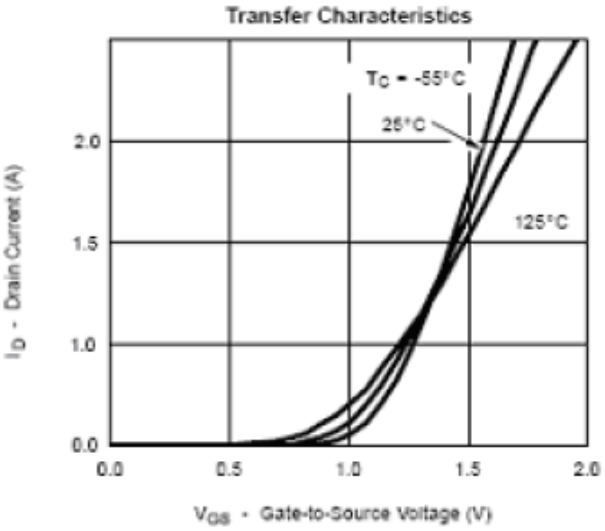
T_A=25℃, unless otherwise specified.

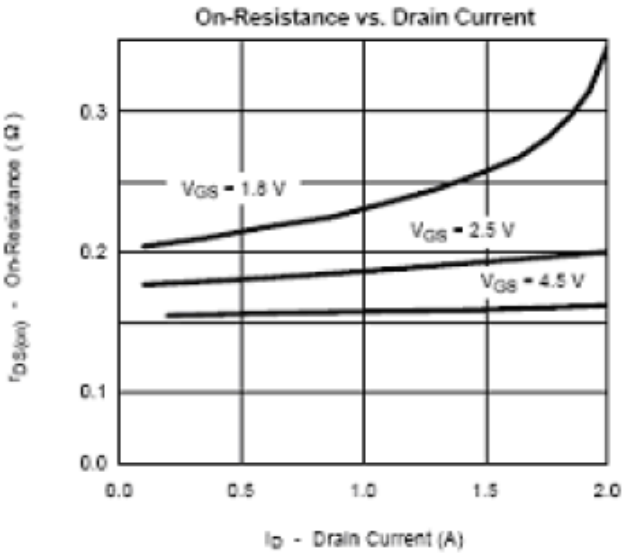
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250 uA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250uA	0.35		1.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			30	uA
Zero Gate Voltage Drain Current	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		

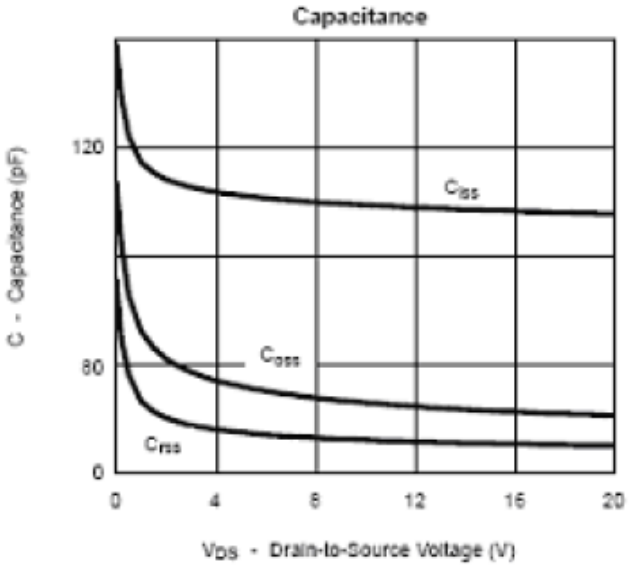
Gate-Drain Charge	Q_{gd}			0.3		
Turn-On Time	td(on)	V_{GEN}=4.5V, I_D=0.5A, V_{DD}=10V, R_G=6Ω, R_L=10Ω		5	10	nS
	tr			8	15	
Turn-Off Time	td(off)			10	18	
	tf			1.2	2.8	

Typical Performance Characteristics









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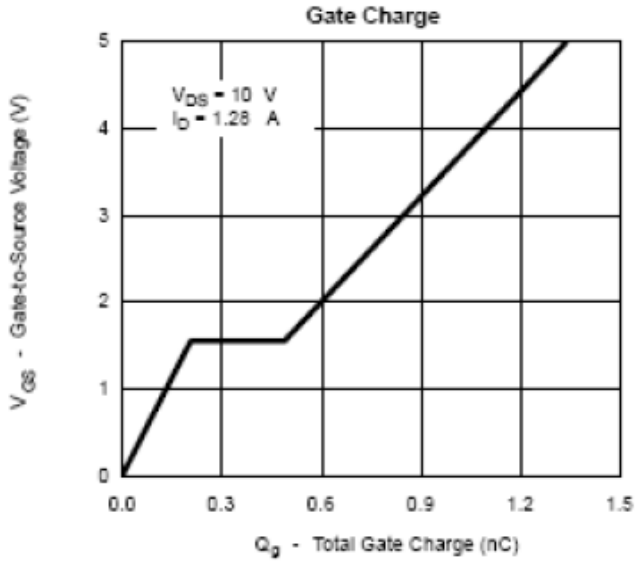

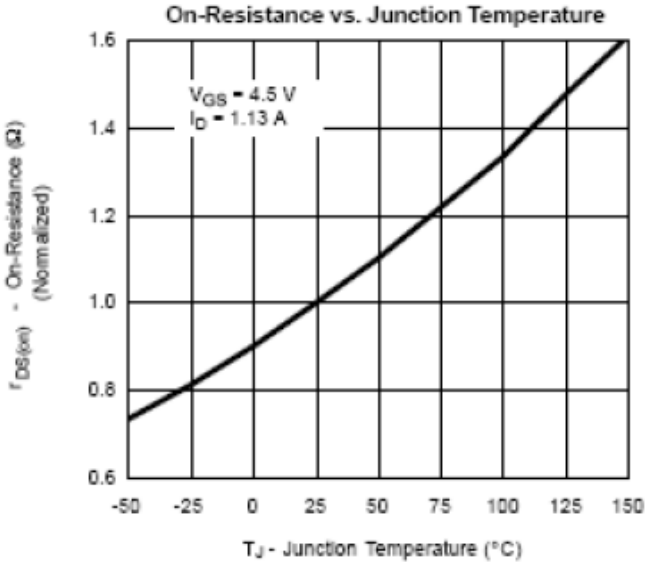

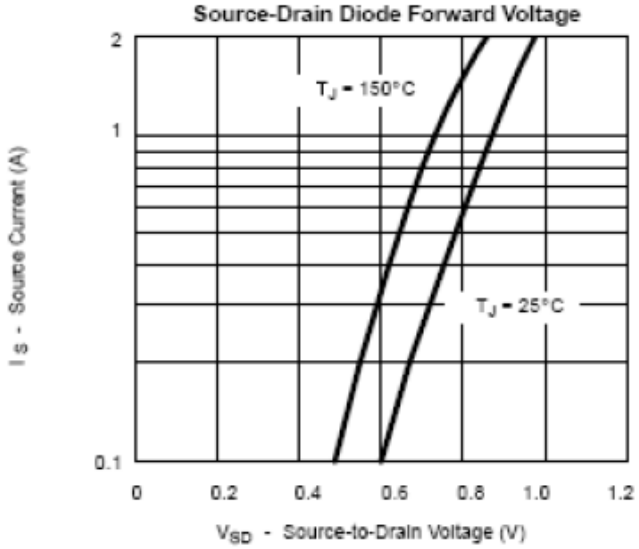

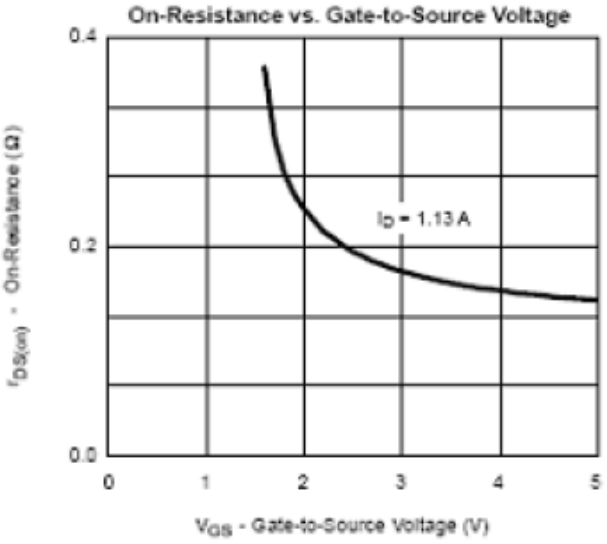

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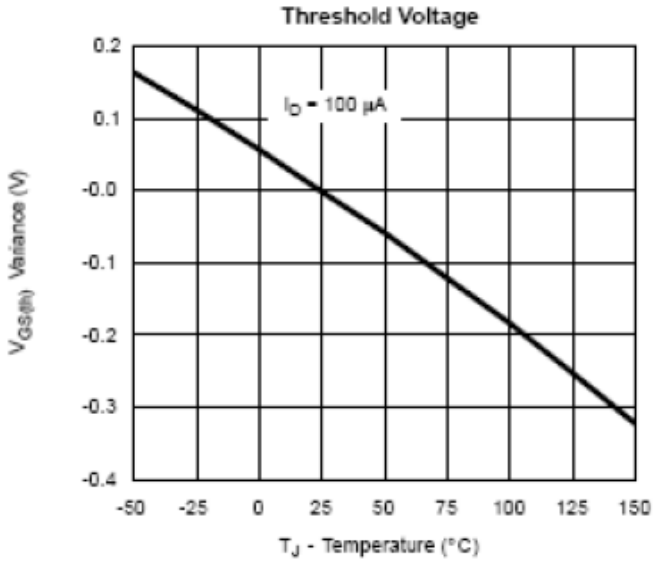
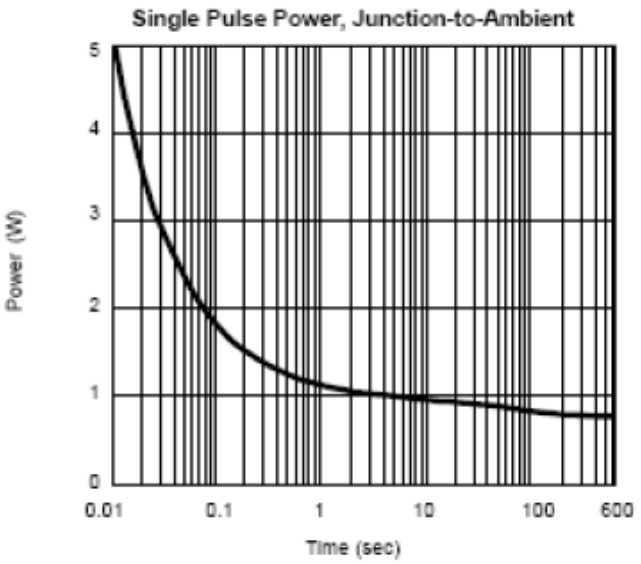
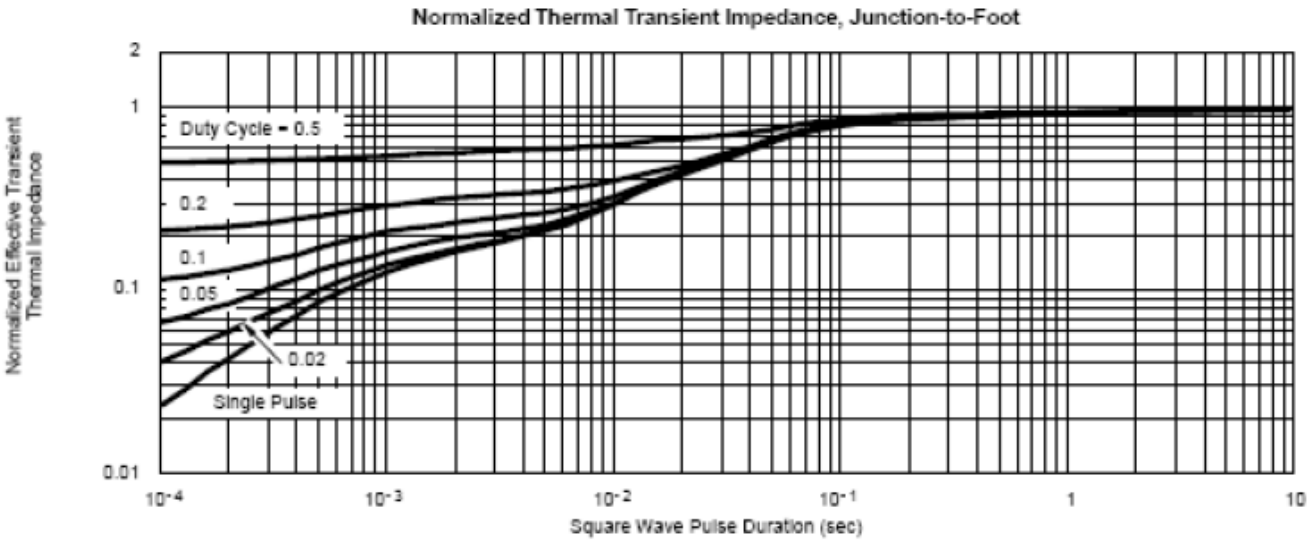
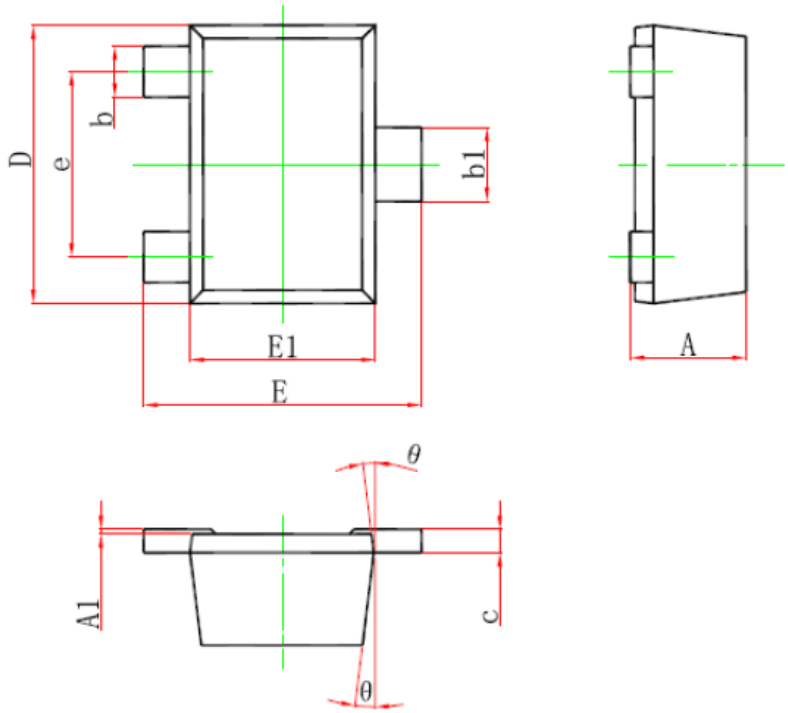






Packing Information

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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