



ACE4922

Dual N-Channel Enhancement Mode MOSFET

Description

The ACE4922 is the Dual 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, $R_{DS(ON)}=380m\Omega@V_{GS}=4.5V$
20V/0.75A, $R_{DS(ON)}=450m\Omega@V_{GS}=2.5V$
20V/0.65A, $R_{DS(ON)}=800m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

Application

- 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}	± 20	V	
Continuous Drain Current ($T_J=150^\circ C$)	I_D	$T_A=25^\circ C$	1.2	A
		$T_A=80^\circ C$	0.9	
Pulsed Drain Current	I_{DM}	4	A	
Continuous Source Current (Diode Conduction)	I_S	0.6	A	
Power Dissipation	P_D	$T_A=25^\circ C$	0.35	W
		$T_A=70^\circ C$	0.19	
Operating Junction Temperature	T_J	-55/150	$^\circ C$	
Storage Temperature Range	T_{STG}	-55/150	$^\circ C$	

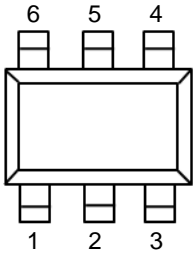


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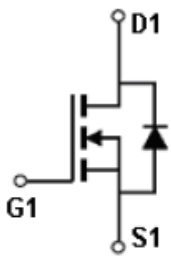
Dual N-Channel Enhancement Mode MOSFET

Packaging Type

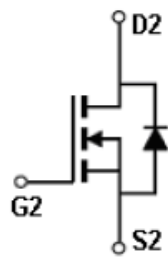
SC-70-6



SC-70-6	Description
1	Source 1
2	Gate 1
3	Drain 2
4	Source 2
5	Gate 2
6	Drain 1



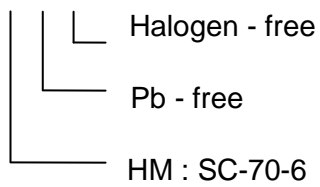
N-Channel



N-Channel

Ordering information

ACE4922 XX + H





Electrical Characteristics

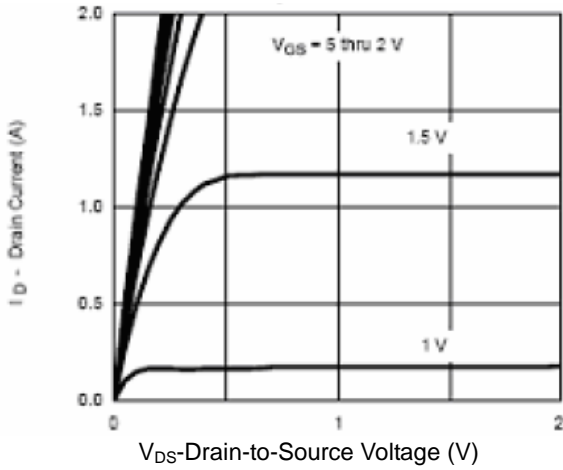
T_A=25°C, unless otherwise noted.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250 uA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _D =V _{GS} , I _D =250uA	0.35		1.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	uA
		V _{DS} =20V, V _{GS} =0V T _J =55°C			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	0.80	
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =0.4A		1.0		S
Diode Forward Voltage	V _{SD}	I _S =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 _{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	

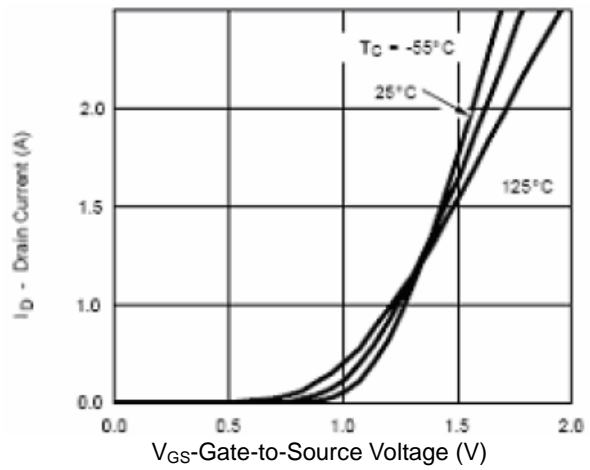


Typical Performance Characteristics

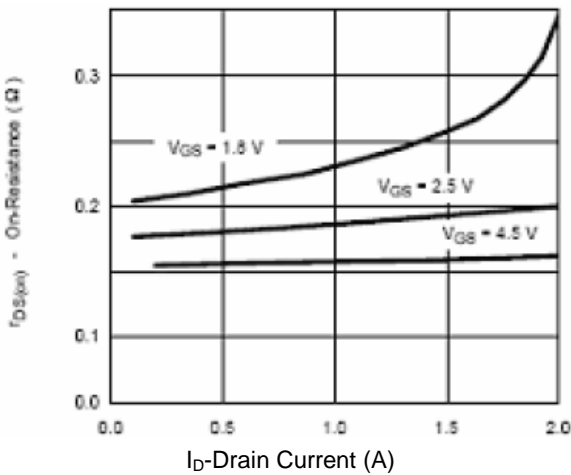
Output Characteristics



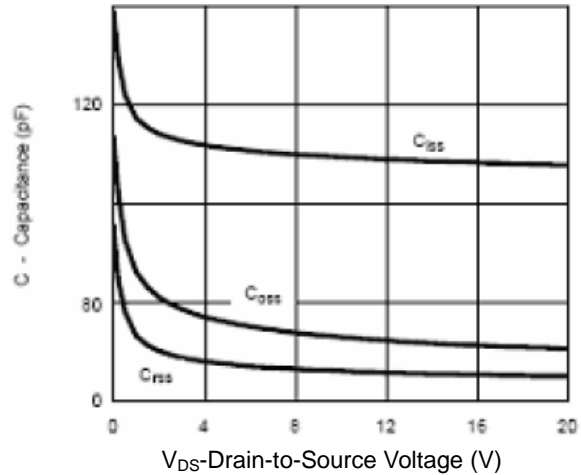
Transfer Characteristics



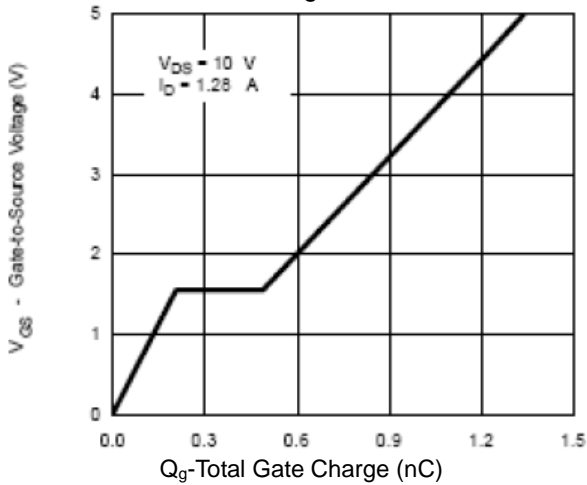
On-Resistance vs. Drain Current



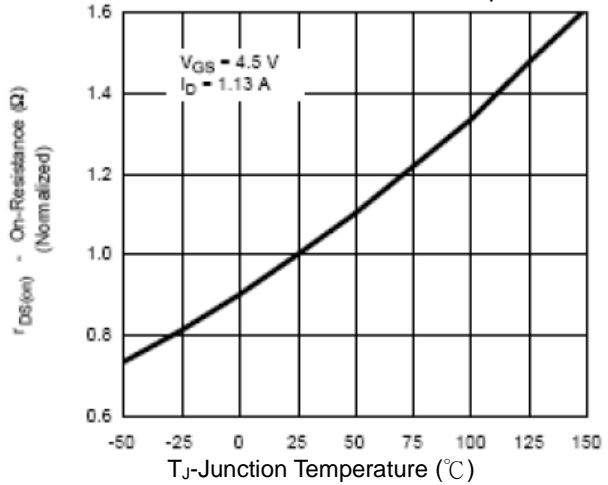
Capacitance



Gate Charge



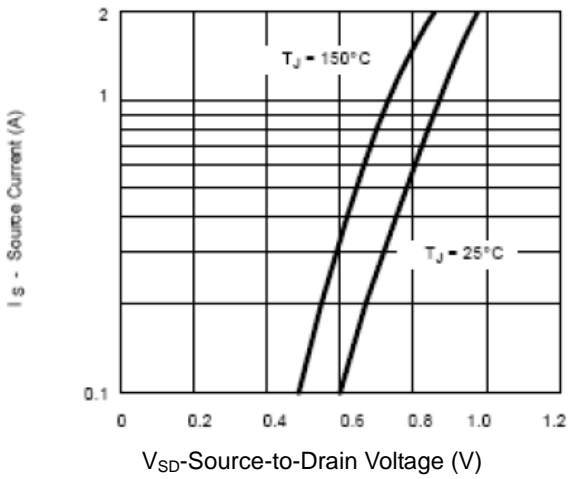
On-Resistance vs. Junction Temperature



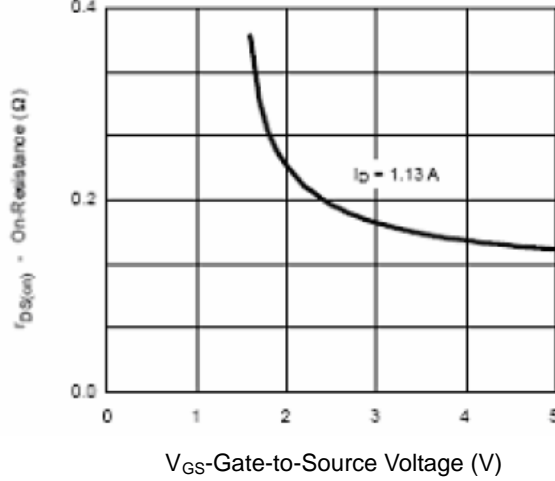


Typical Performance Characteristics

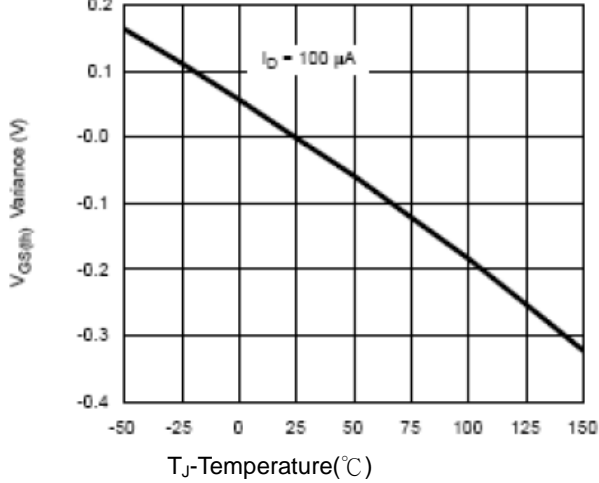
Source-Drain Diode Forward Voltage



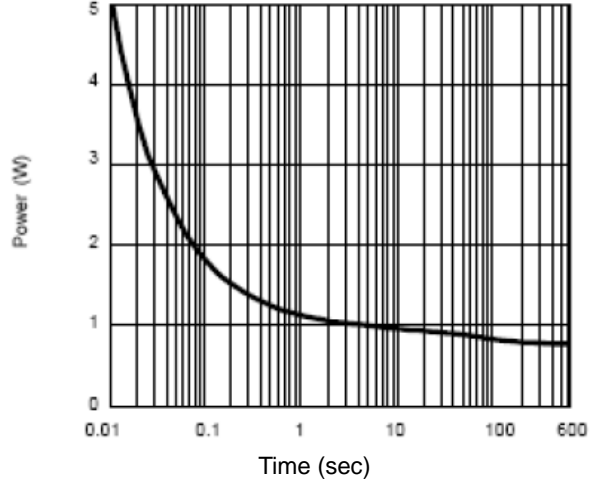
On-Resistance vs. Gate-to-Source Voltage



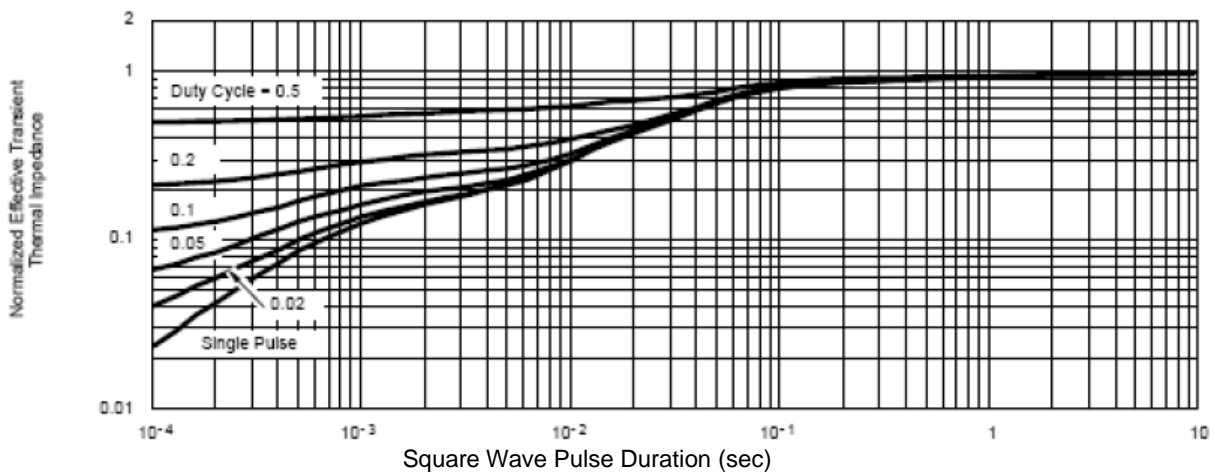
Threshold Voltage



Single Pulse Power, Junction-to-Ambient



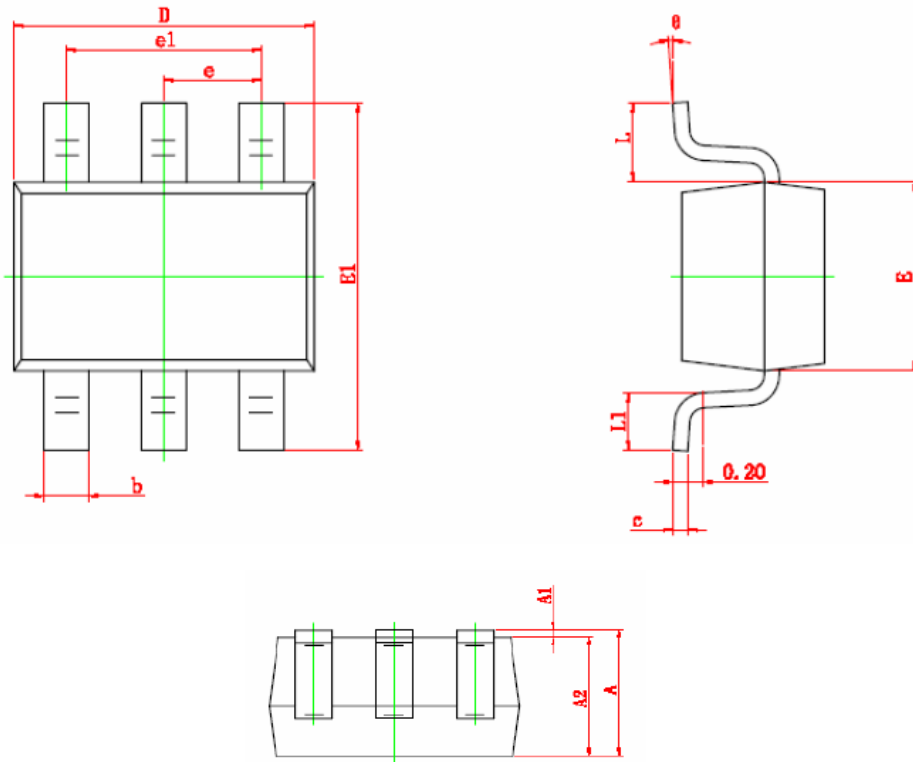
Normalized Thermal Transient Impedance, Junction-to-Foot





Packing Information

SC-70-6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



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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 whose 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.

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