



# ACE12367A

## P-Channel Enhancement Mode MOSFET

### Description

The ACE12367A is the P-Channel logic 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.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

### Features

- -20V/-5.0A,  $R_{DS(ON)} = 90m\Omega @ V_{GS} = -4.5V$
- -20V/-3.5A,  $R_{DS(ON)} = 110m\Omega @ V_{GS} = -2.5V$
- -20V/-1.7A,  $R_{DS(ON)} = 140m\Omega @ V_{GS} = -1.8V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-6 package design

### Application

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



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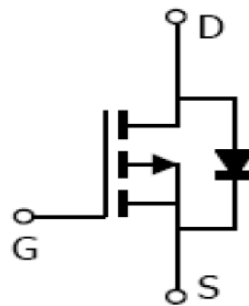
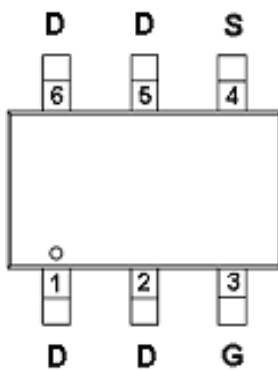
### Absolute Maximum Ratings

( $T_A=25^\circ\text{C}$  Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	$V_{DSS}$	-20	V
Gate –Source Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current( $T_J=150^\circ\text{C}$ )	$I_D$	$T_A=25^\circ\text{C}$	-5.2
		$T_A=70^\circ\text{C}$	-4.2
Pulsed Drain Current	$I_{DM}$	-20	A
Continuous Source Current(Diode Conduction)	$I_S$	-1.7	A
Power Dissipation	$P_D$	$T_A=25^\circ\text{C}$	2.0
		$T_A=70^\circ\text{C}$	1.3
Operating Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55/150	$^\circ\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	90	$^\circ\text{C/W}$

### Packaging Type

SOT-23-6



### Pin Description

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

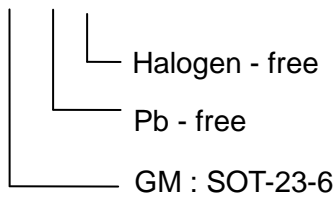


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### Ordering information

ACE12367A XX + H



### Electrical Characteristics

T<sub>A</sub>=25 °C unless otherwise noted

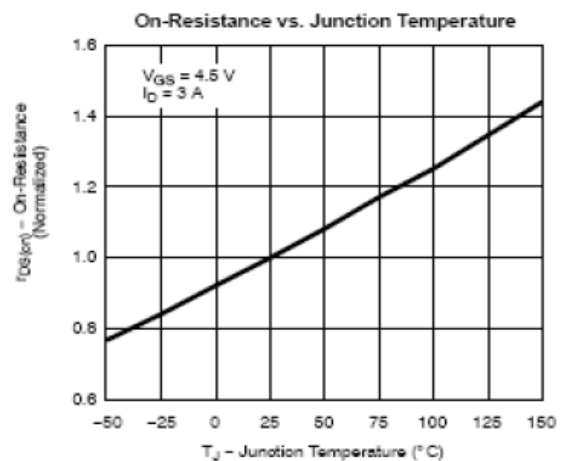
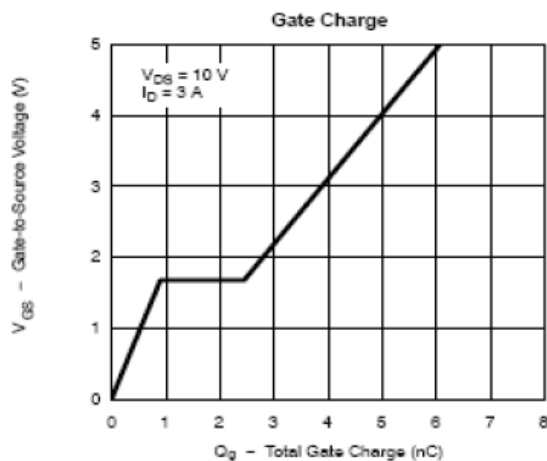
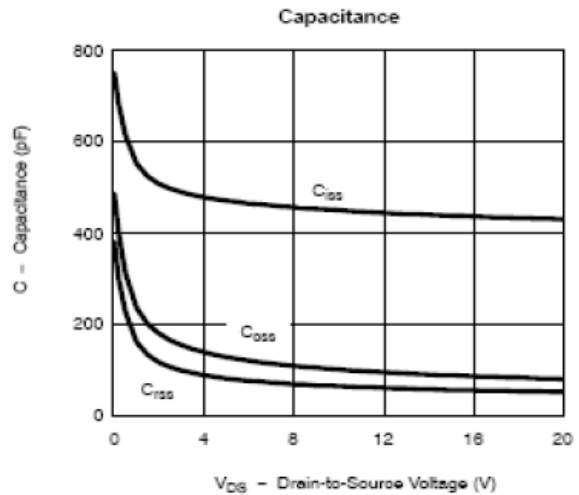
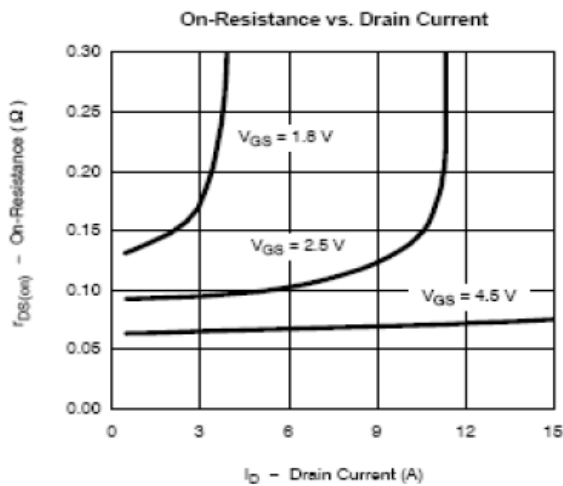
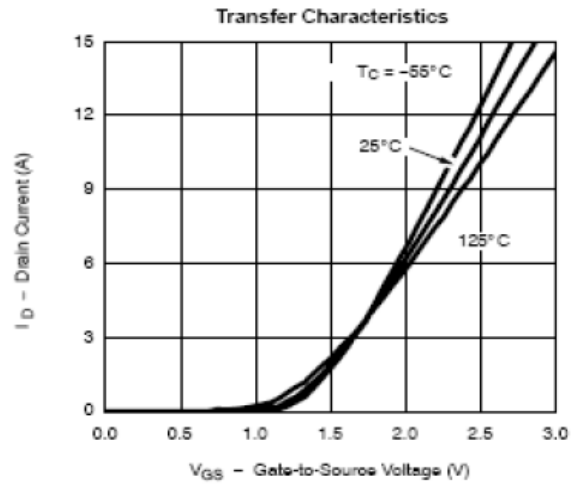
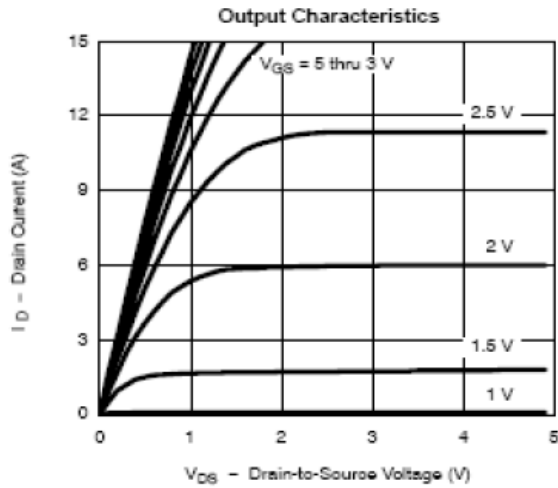
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.35		-0.8	V
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V			-1	uA
		V <sub>DS</sub> =-20V, V <sub>GS</sub> =0V T <sub>J</sub> =55°C			-5	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>D</sub> ≤ -5V, V <sub>GS</sub> = -4.5V	-6			A
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5.0A		75	90	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3.5A		90	110	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -1.7A		120	140	
Forward Trans conductance	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -2.8A		6		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>SD</sub> = -1.5A, V <sub>GS</sub> = 0V		-0.8	-1.2	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>gs</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = -4.5V I <sub>D</sub> = -2.8A		4.8	8	nC
Gate-Source Charge	Q <sub>gs</sub>			1.0		
Gate-Drain Charge	Q <sub>gd</sub>			1.0		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -6V, V <sub>GS</sub> = 0V f = 1MHz		485		pF
Output Capacitance	C <sub>oss</sub>			85		
Reverse Transfer Capacitance	C <sub>rss</sub>			40		
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> = -6V, R <sub>L</sub> = 6Ω I <sub>D</sub> = -1.0A, V <sub>GEN</sub> = -4.5V R <sub>G</sub> = 6Ω		10	16	ns
	t <sub>r</sub>			13	23	
Turn-Off Time	t <sub>d(off)</sub>			18	25	
	t <sub>f</sub>			15	20	



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### Typical Characteristics

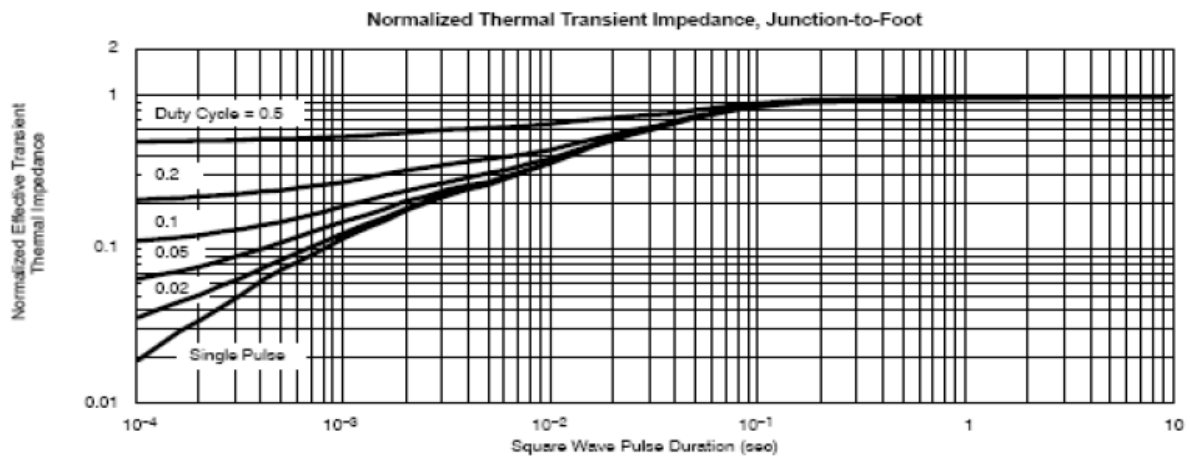
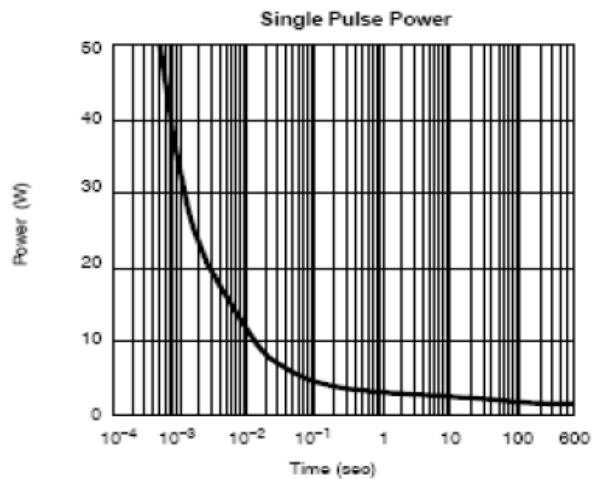
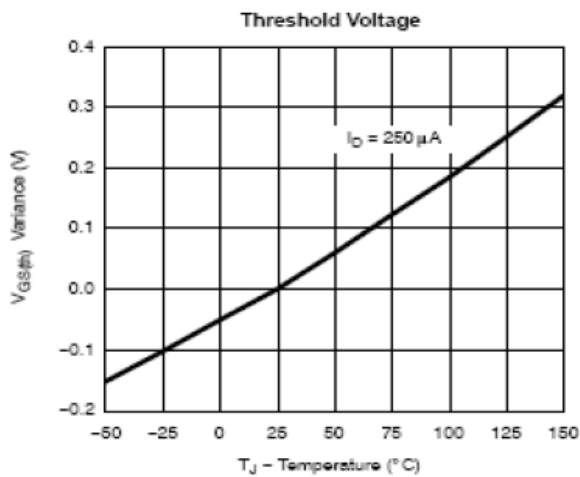
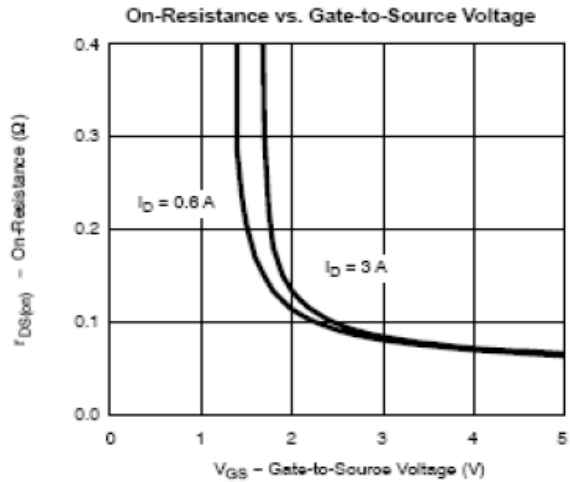
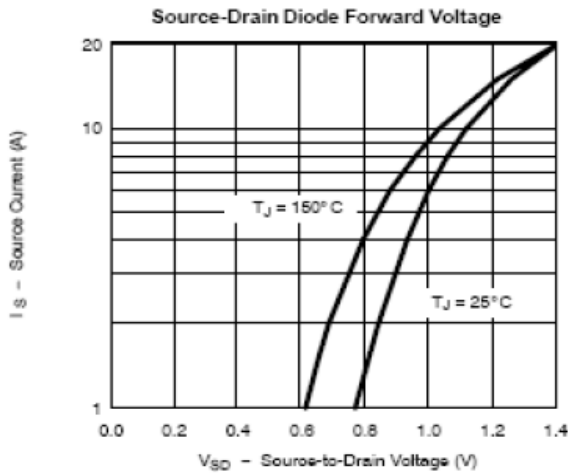




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### Typical Characteristics



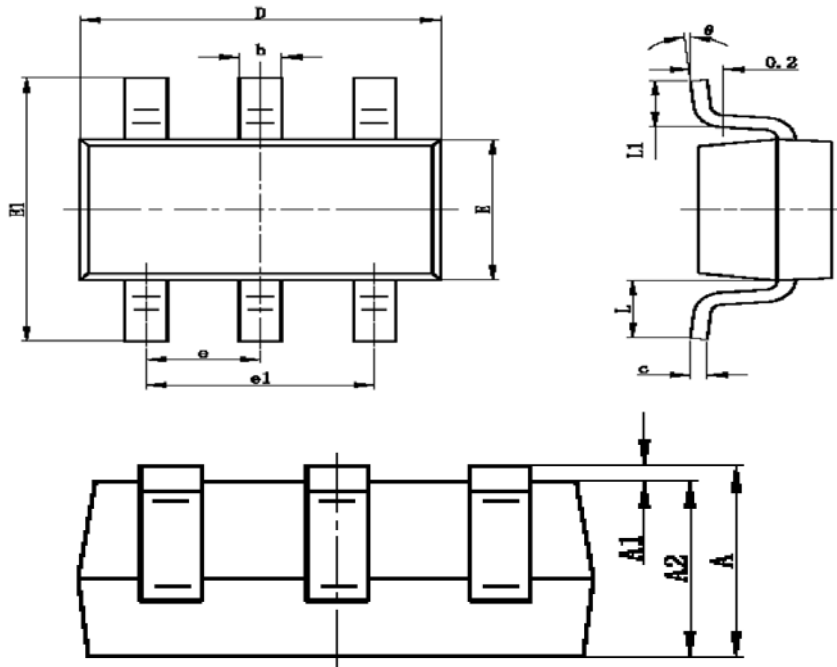


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### Packing Information

#### SOT-23-6



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.020	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.700 REF		0.028 REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



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### 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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