



ACE1P3303K

P-Channel Mode Power MOSFET

Description

The device has been designed to deliver the lowest on resistance and gate charge in the smallest outline possible with excellent thermal characteristics in an ultra-low profile.

Features

- $R_{DS(ON)}@V_{GS}=-10V$, TYP 55m Ω
- $R_{DS(ON)}@V_{GS}=-4.5V$, TYP 75m Ω
- Ultra Low Qg and Qgd
- High Speed
- Small Footprint 0.677mm × 0.743mm
- Low Profile 0.25mm Height
- Pb Free / RoHS Compliant
- CSP-4 Package

Applications

- Power Management
- Load Switch
- Battery Protection
- DC/DC Converter
- DSC
- LCD Display
- Load Switch

Absolute Maximum Ratings $T_A = 27^\circ\text{C}$ unless otherwise stated

Parameter	Symbol	Value	Unit
Drain to Source Voltage	V_{DS}	-30	V
Gate to Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, $T_C = 27^\circ\text{C}$ (1)	I_D	-5	A
Pulsed Drain Current, $T_A = 27^\circ\text{C}$ (2)	I_{DM}	-30	A
Power Dissipation (1)	P_D	4	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Note:

1. $R_{\theta JA} = 100^\circ\text{C/W}$ on 1in² Cu (2 oz.) on 0.060" thick FR4 PCB.
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$



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Thermal Characteristics ($T_A = 27^\circ\text{C}$ Unless Otherwise Stated)

Parameter		Typ	Unit
Thermal Resistance Junction to Ambient (1)	$R_{\theta JA}$	35	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (2)		210	$^\circ\text{C/W}$

$R_{\theta JA}$ is determined with the device mounted on a 1 in2 pad 2oz copper pad on a 1.5 x 1.5 in2 board of FR-4 material.

$R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.

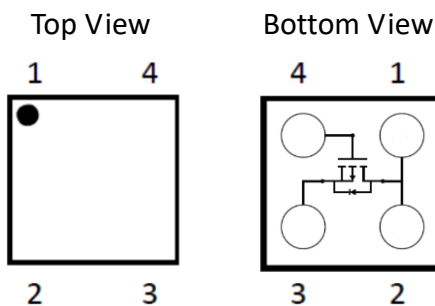
1. When mounted on 1in2 Cu 2oz. copper on FR4 PCB, 35 $^\circ\text{C/W}$ when mounted on a 1 in2 pad of 2oz copper.
2. 210 $^\circ\text{C/W}$ when mounted on a minimum pad of 2 oz. copper

Product Summary

Parameter	Symbol	Value	Unit	
Drain to Source Voltage	V_{DS}	-30	V	
Gate Charge Total (-10V)	Q_g	3	nC	
Gate Charge Gate to Drain	Q_{gd}	0.65	nC	
Drain to Source On Resistance	$R_{DS(ON)}$	$V_{GS} = -10\text{V}$	55	$\text{m}\Omega$
		$V_{GS} = -4.5\text{V}$	75	$\text{m}\Omega$
Threshold Voltage	$V_{GS(th)}$	-0.8	V	

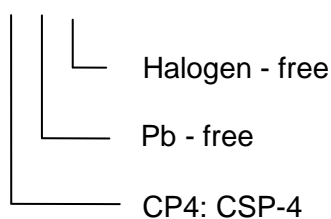
Packaging Type

CSP-4



Ordering information

ACE1P3303K XX + H





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Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Technology Co., LTD. As used herein:

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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