

Description

The ECS41F is Hall Effect IC. The operating voltage range of ECS41F is 3V ~ 28V. ECS41F provides symmetrical magnetic field induction specifications and fast magnetic field switching detection. The magnetic field detection direction of ECS41F is defined as a north pole of sufficient strength will turn the output ON. In the absence of a magnetic field, the output is OFF.

ECS41F can be used in magnetic field detection, speed detection, position detection, and non-contact switch.

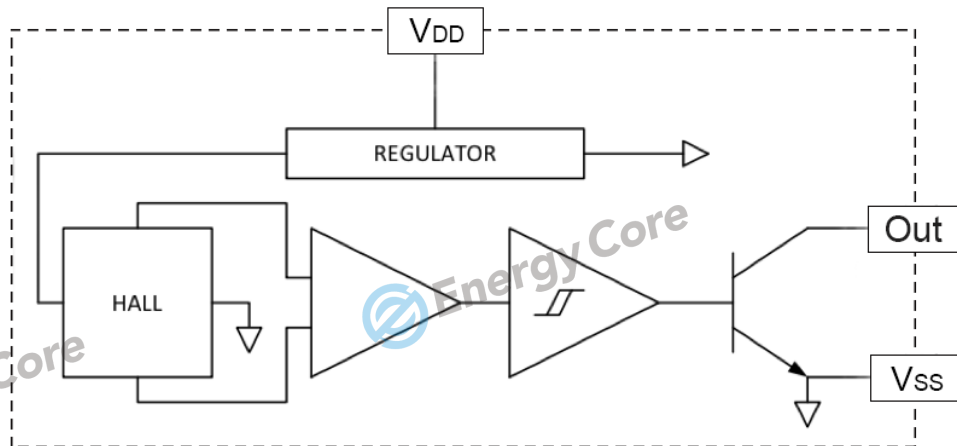
Feature

- ◆ Input voltage range : 3V~28V
- ◆ Maximum output sink current : 50mA
- ◆ Open collector pre-driver
- ◆ Package Type : SIP-3

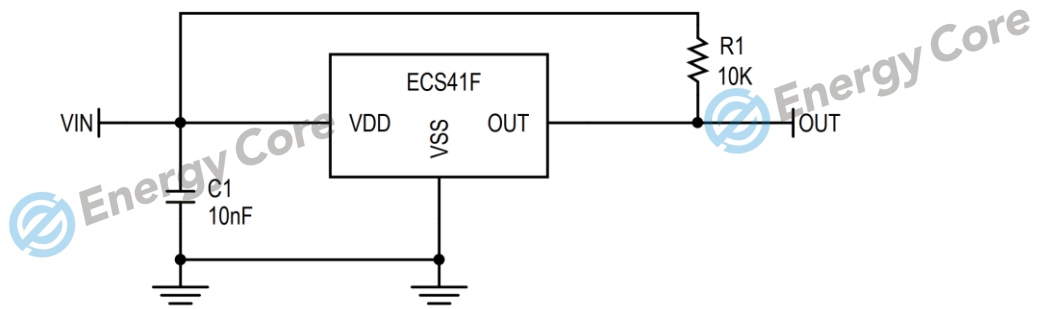
Application

- ◆ DC brush less motor
- ◆ Speed detect
- ◆ Position detect
- ◆ Non-contact switch

Functional Block Diagram



Typical Application Circuit



Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
VDD Pin Voltage				28		V
Output OFF Voltage	Vce			28		V
Output ON Current	Io	Continuous current		50		mA
Power Dissipation		Ta=25°C		500		mW
Thermal Resistance	θ_{ja}			0.27		°C/mW

Electrical Characteristics $V_{CC}=5.0V, T_A=25^\circ C$ (unless otherwise specified)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Temperature Range			-40		125	°C
Storage Temperature Range			-65		150	°C
Junction Temperature					160	°C
Lead Temperature		Soldering, 10 sec			160	°C

DC Electrical Characteristics (at Ta = 25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating Voltage	VDD	No use pin is open (Fig1)	3.0	-	28.0	V
Supply current	IDD	No use pin is open Vcc : 3.0V to 28V (Fig1)	-	3.5	10	mA
Output Saturation Voltage	VSAT	V _{DD} =12V, I _o = 20mA	-	165	200	mV
Output Rise time	tr	RL=500ohm,CL=20pF (Fig1)	0.2	-	0.75	μs
Output Fall time	t _f	RL=500ohm,CL=20pF (Fig1)	20	-	150	ns

Magnetic Characteristics (1mT=10Gauss)

ECS41F-A

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate Point	Bop	+15	-	+60	Gauss
Release Point	Brp	-60	-	-15	Gauss
Hysteresis	Bhys		70		Gauss

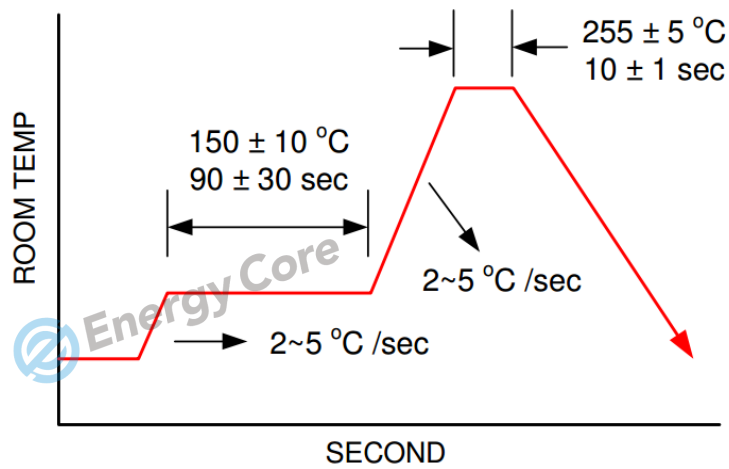
ECS41F-B

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate Point	Bop	+10	-	+80	Gauss
Release Point	Brp	-80	-	-10	Gauss
Hysteresis	Bhys		90		Gauss

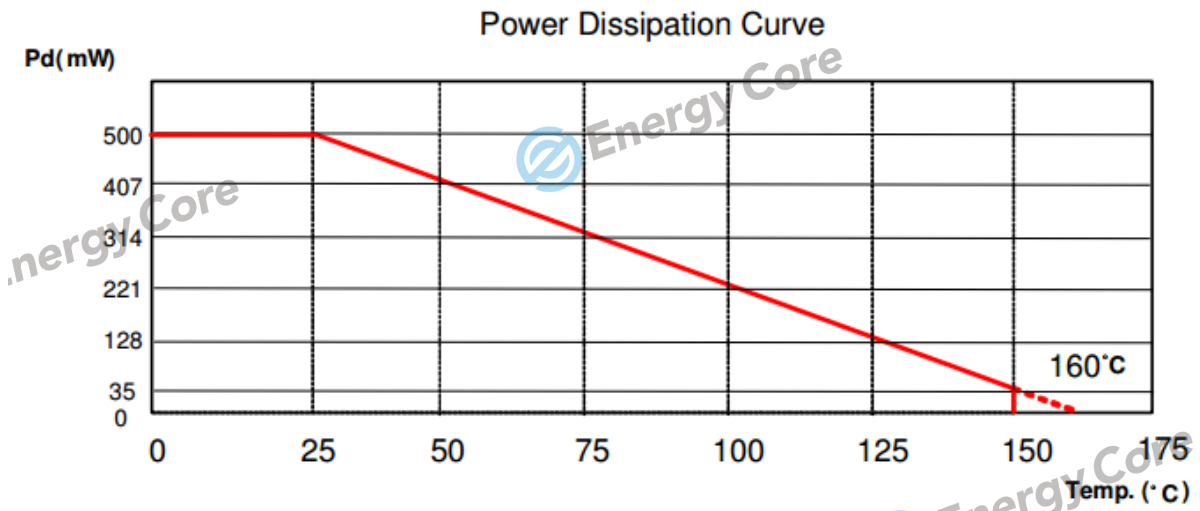
ECS41F-C

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate Point	Bop	0	-	+90	Gauss
Release Point	Brp	-90	-	0	Gauss
Hysteresis	Bhys		90		Gauss

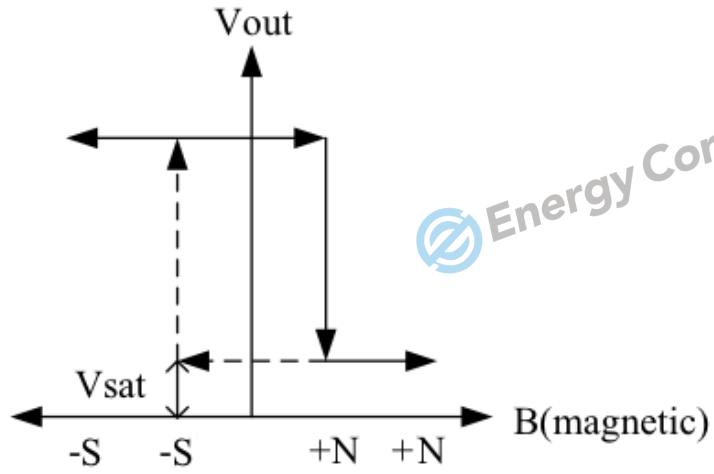
IR Re-flow Soldering Curve



Power Dissipation



ECS41F Magnetic Hysteresis



Test Circuits

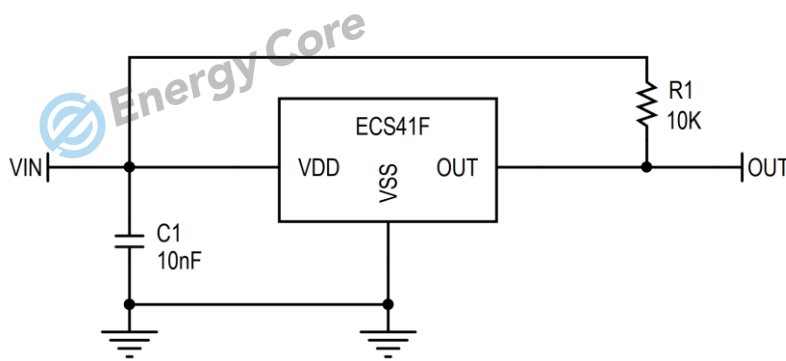
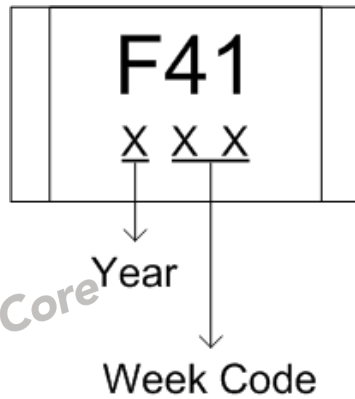


Fig 1

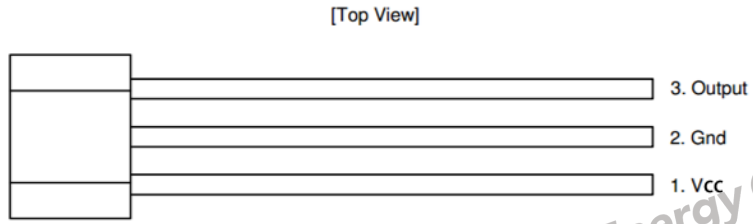
Notes:

C1: The layout position must be very close to the IC body.

Marking Information



Pin Descriptions

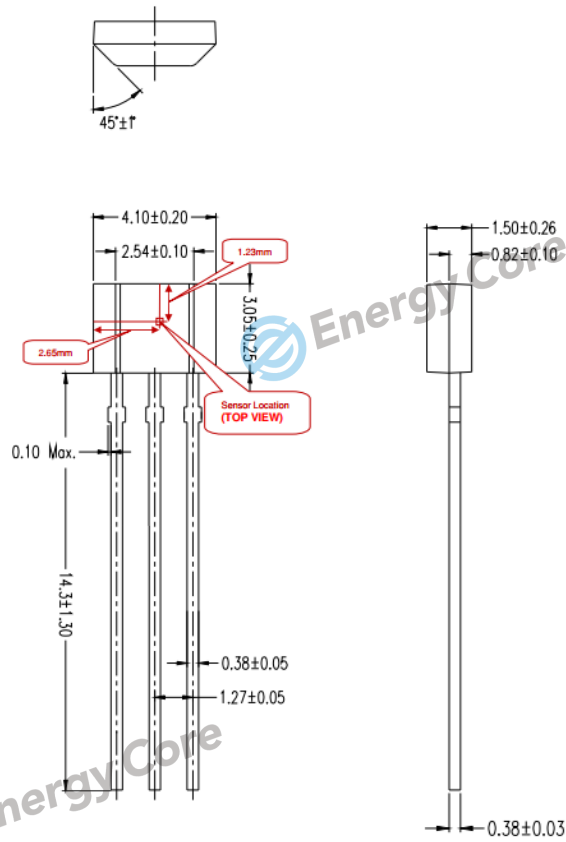


Order Information

Part number	Operating Temp	MOQ	Package Type
ECS41F-A	-40°C~125°C	1000EA	TO-92S-3
ECS41F-B	-40°C~125°C	1000EA	TO-92S-3
ECS41F-C	-40°C~125°C	1000EA	TO-92S-3

Package Outline

TO-92S-3



UNIT : mm