

## 350mA ADVANCED CURRENT REGULATOR

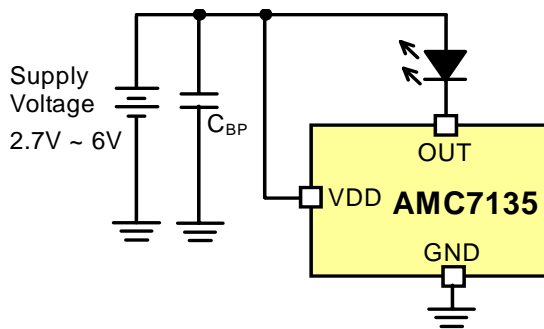
### DESCRIPTION

The AMC7135 is a low dropout current regulator rated for 350mA constant sink current. The low quiescent current and low dropout voltage is achieved by advanced Bi-CMOS process.

### FEATURES

- 350mA constant sink current.
- Output short / open circuit protection.
- Low dropout voltage.
- Low quiescent current
- Supply voltage range 2.7V ~ 6V
- 2KV HBM ESD protection
- Advanced Bi-CMOS process.
- SOT-89 and TO-252 package

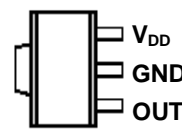
### TYPICAL APPLICATION CIRCUIT



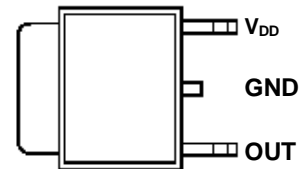
### APPLICATIONS

- Power LED driver

### PACKAGE PIN OUT



SOT-89



TO-252

(Top View)

### ORDER INFORMATION

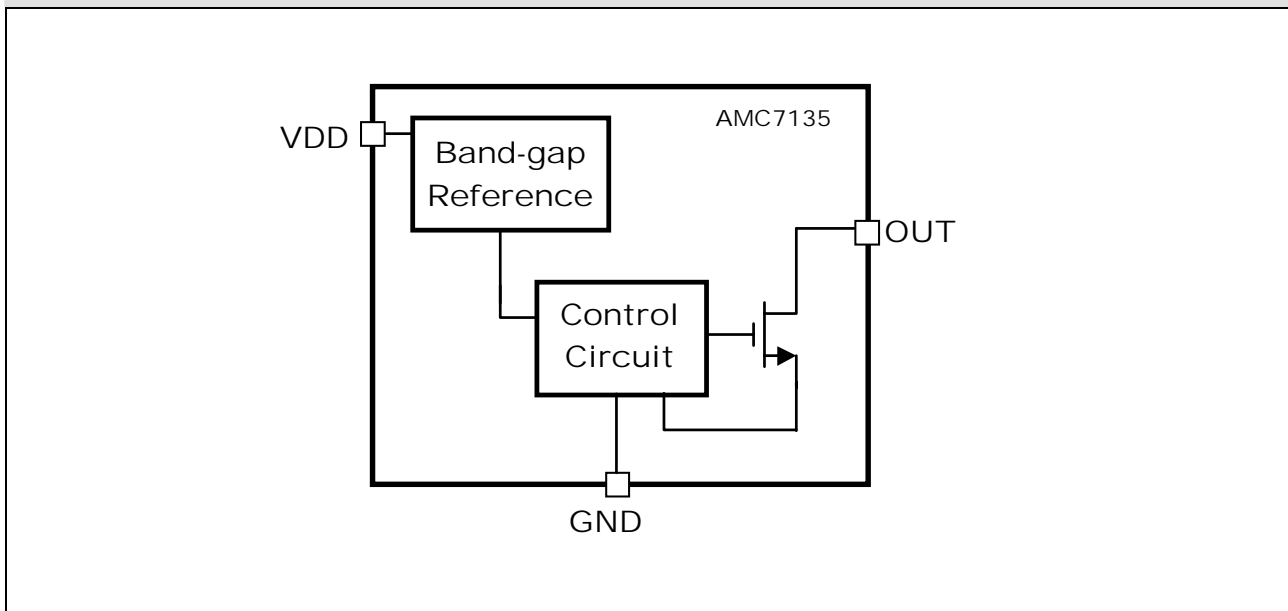
I <sub>OUT</sub>	PK	SOT-89	SJ	TO-252
		3-pin		3-pin
340-380mA		AMC7135PKF		AMC7135SJF
300-340mA		AMC7135PKFA		AMC7135SJFA

Note: 1. All surface-mount packages are available in Tape & Reel. Append the letter "T" to part number (i.e. AMC7135PKFAT).  
 2. The letter "F" is marked for Lead Free process.  
 3. The letter "A" is marked for current ranking.

**ABSOLUTE MAXIMUM RATINGS** (Note)

Input Voltage, $V_{DD}$	-0.3V to 7V
Output Voltage, $V_{OUT}$	-0.3V to 7V
Maximum Junction Temperature, $T_J$	150°C
Storage Temperature Range	-40°C to 150°C
Lead Temperature (Soldering, 10 seconds)	260°C

Note: Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground.  
 Currents are positive into, negative out of the specified terminal.

**BLOCK DIAGRAM**

**PIN DESCRIPTION**

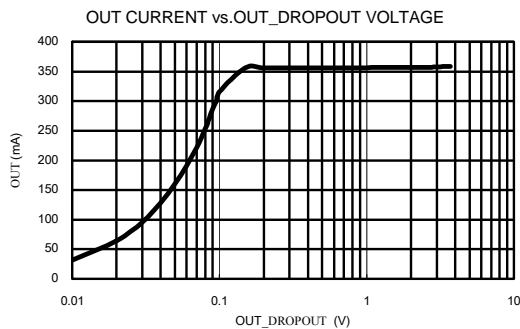
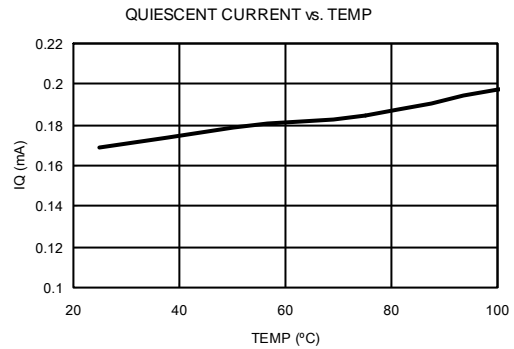
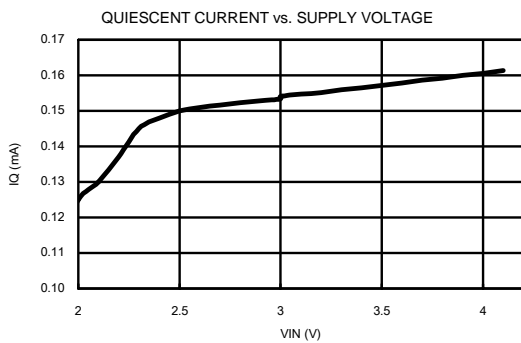
Pin Name	Pin Function
$V_{DD}$	Power supply.
OUT	Output pins. Connected to load.
GND	Ground.

**RECOMMENDED OPERATING CONDITIONS**

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	$V_{DD}$	2.7		6	V
Output Sink Current	$I_{OUT}$			400	mA
Operating Free-air Temperature Range	$T_A$	-40		+85	°C

**DC ELECTRICAL CHARACTERISTICS**
 $V_{DD}=3.7V, T_A=25^{\circ}C, \text{ No Load, ( Unless otherwise noted)}$ 

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Apply Pin
Output Sink Current	$I_{SINK}$	$V_{OUT}=0.2V$	340	360	380	mA	OUT
		$V_{OUT}=0.2V, \text{ Rank A}$	300	320	340	mA	
Load Regulation		$V_{OUT}=0.2V \text{ to } 3V$			3	mA/V	
Line Regulation		$V_{DD}=3V \text{ to } 6V, V_{OUT}=0.2V$			3	mA/V	
Output Dropout Voltage	$V_{OUTL}$			120		mV	
Supply Current Consumption	$I_{DD}$			200		uA	VDD

 Note 1: Output dropout voltage:  $90\% \times I_{OUT} @ V_{OUT}=200mV$ 
**TYPICAL OPERATION CHARACTERISTICS**


**APPLICATION INFORMATION**
**The Maximum Power Dissipation on Regulator:**

$$P_{D(MAX)} = V_{OUT(MAX)} \times I_{OUT(NOM)} + V_{IN(MAX)} \times I_Q$$

$V_{OUT(MAX)}$  = the maximum voltage on output pin;

$I_{OUT(NOM)}$  = the nominal output current;

$I_Q$  = the quiescent current the regulator consumes at  $I_{OUT(MAX)}$ ;

$V_{IN(MAX)}$  = the maximum input voltage.

**Thermal Consideration:**

The maximum junction temperature ratings of AMC7135 should not be exceeded under continuous normal load conditions. When power consumption is over about 700mW (SOT-89 package, at  $T_A=70^\circ\text{C}$ ) or 1000mW (TO-252 package, at  $T_A=70^\circ\text{C}$ ), additional heat sink is required to control the junction temperature below  $120^\circ\text{C}$ .

The junction temperature is:

$$T_J = P_D (\theta_{JT} + \theta_{CS} + \theta_{SA}) + T_A$$

$P_D$  : Dissipated power.

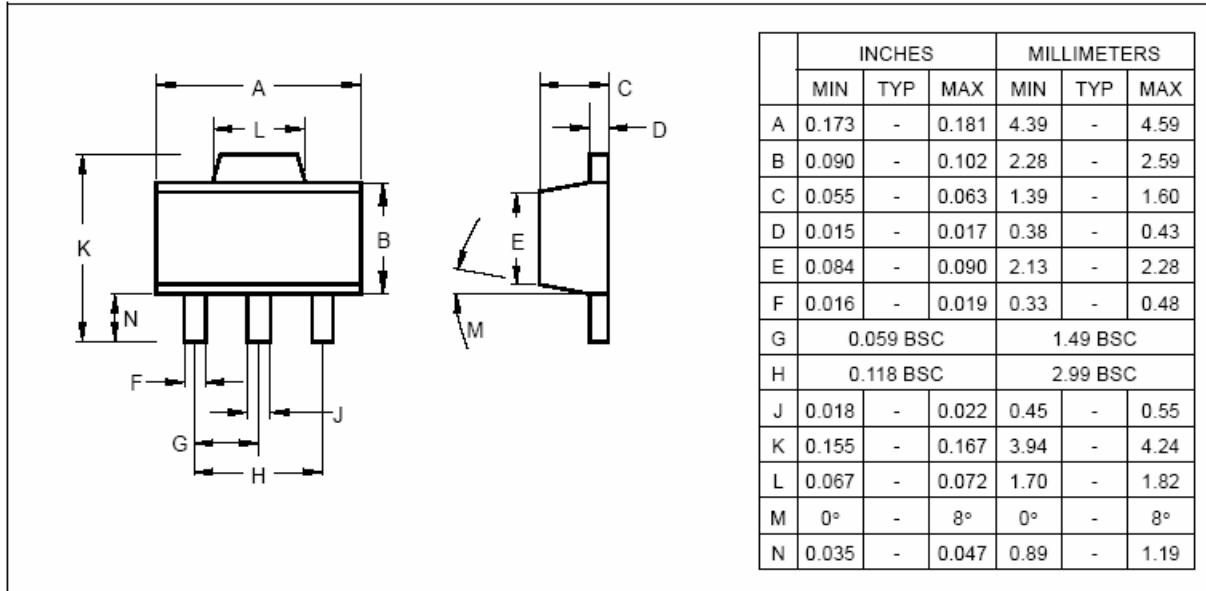
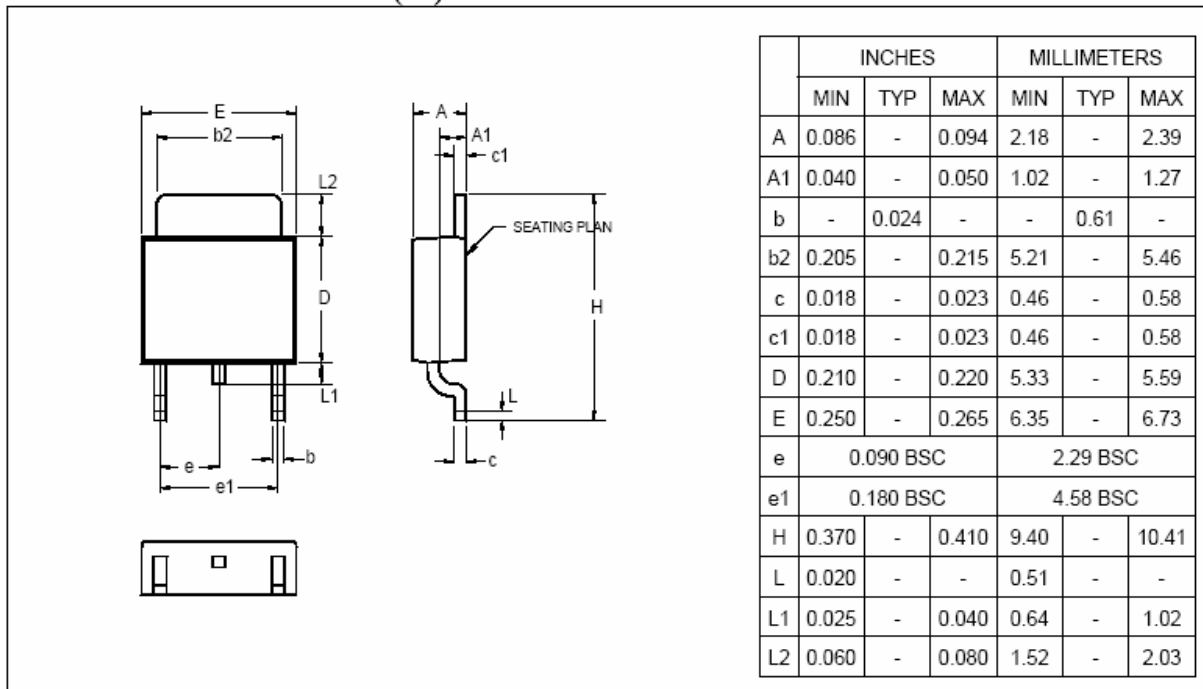
$\theta_{JT}$ : Thermal resistance from the junction to the mounting tab of the package.

$\theta_{CS}$ : Thermal resistance through the interface between the IC and the surface on which it is mounted.  
(typically,  $\theta_{CS} < 1.0^\circ\text{C/W}$ )

$\theta_{SA}$ : Thermal resistance from the mounting surface to ambient (thermal resistance of the heat sink).

If PC Board copper is going to be used as a heat sink, below table can be used to determine the appropriate size of copper foil required. For multi-layered PCB, these layers can also be used as a heat sink. They can be connected with several through-hole vias.

PCB $\theta_{SA}$ ( $^\circ\text{C/W}$ )	59	45	38	33	27	24	21
PCB heat sink size ( $\text{mm}^2$ )	500	1000	1500	2000	3000	4000	5000

**PACKAGE**
**3-Pin Surface Mount SOT-89**

**3-Pin Surface Mount TO-252 (SJ)**


**IMPORTANT NOTICE**

ADDtek reserves the right to make changes to its products or to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

A few applications using integrated circuit products may involve potential risks of death, personal injury, or severe property or environmental damage. ADDtek integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life-support applications, devices or systems or other critical applications. Use of ADDtek products in such applications is understood to be fully at the risk of the customer. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

ADDtek assumes no liability to customer product design or application support. ADDtek warrants the performance of its products to the specifications applicable at the time of sale.

---

**ADDtek Corp.**

9F, No. 20, Sec. 3, Bade Rd., Taipei, Taiwan, 105

TEL: 2-25700299

FAX: 2-25700196

---

**This datasheet has been downloaded from:**

**[www.EEworld.com.cn](http://www.EEworld.com.cn)**

**Free Download**

**Daily Updated Database**

**100% Free Datasheet Search Site**

**100% Free IC Replacement Search Site**

**Convenient Electronic Dictionary**

**Fast Search System**

**[www.EEworld.com.cn](http://www.EEworld.com.cn)**