

ISL6534

Dual PWM with Linear

FN9134
Rev 2.00
Nov 18, 2005

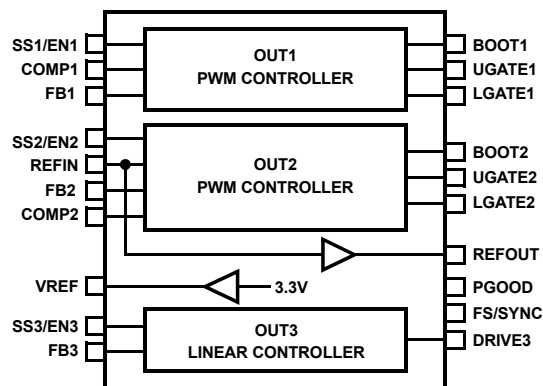
The ISL6534 is a versatile triple regulator that has two independent synchronous-rectified buck controllers with integrated 12V gate drivers (OUT1 and OUT2) and a linear controller (OUT3) to offer precision regulation of up to three voltage rails. An optional shunt regulator allows 12V only operation, when a 5V supply is not available.

Each controller has independent soft-start and enable functions combined on a single pin. A capacitor from each SS/EN pin to ground sets the soft-start time, and pulling SS/EN below 1.0V disables the controller. The SS/EN pins can be controlled independently or they can be ganged together to provide complete control of start-up coordination. The PGOOD function indicates when all regulators have completed their soft-start and provides an indication of short-circuit conditions on either switching regulator.

There are two ways to control the switching frequency of the PWM regulators. The default switching frequency is 300kHz (FS_SYNC to ground). A resistor from FS_SYNC to ground increases the switching frequency (up to 1MHz). Connecting the gate signal from another PWM IC synchronizes the ISL6534 switchers to the frequency of the other controller. This allows independent regulators operating at a common frequency to avoid low-frequency beats. The gate drivers for DDR mode can be staggered by 90° in order to minimize cross-conduction.

Switcher OUT1 has an internal reference for regulating any voltage down to 0.6V. OUT2 has current sinking capability and an external reference input allowing convenient connection to OUT1 through a resistor divider for DDRAM applications. The 3.3V reference pin provides the option for independent regulation of OUT2. The linear controller drives an external N-Channel MOSFET, making the ISL6534 one of the most versatile regulators available.

Simplified Block Diagram



Features

- Two Synchronous-Rectified Buck Controllers
 - Voltage Mode Control
 - VIN Range up to 12V
 - VOUT Range from 0.6V to 6V
 - 12V LGATE Drivers; up to 12V Boot Strap for UGATE
- Switcher References
 - 0.6V Reference for OUT1
 - 3.3V Reference Output for OUT2
 - External Reference Input for OUT2
 - Buffered VTT Reference Output
- Switcher Clocking
 - Phase Options for Optimal Clock Relationship
 - Resistor-Selectable Switching Frequency (300kHz default; Resistor to Ground for 300kHz to 1MHz range)
 - Synchronization-Capable Switching Frequency (Connect FS_SYNC to Separate Regulator)
- Single Linear Controller
 - Drives N-Channel MOSFET
 - 0.6V Reference
 - VIN Range up to 12V
 - VOUT Range from 0.6V to 3.3V
- 12V and 5V Supplies Required (but optional shunt regulator can generate VCC = 5.8V from 12V)
- Three Independent Soft-Start/Enable Pins
 - Gang Together or Control Independently
- PGOOD Output Indicates All Outputs Available
- Thermally Enhanced QFN or TSSOP Package
- QFN Package:
 - Compliant to JEDEC PUB95 MO-220
 - QFN - Quad Flat No Leads - Package Outline
 - Near Chip Scale Package footprint, which improves PCB efficiency and has a thinner profile
- Pb-Free Plus Anneal Available (RoHS Compliant)

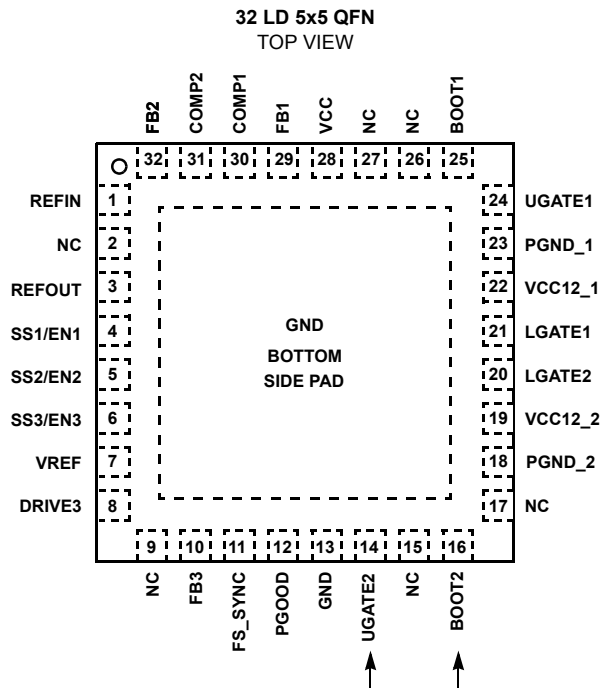
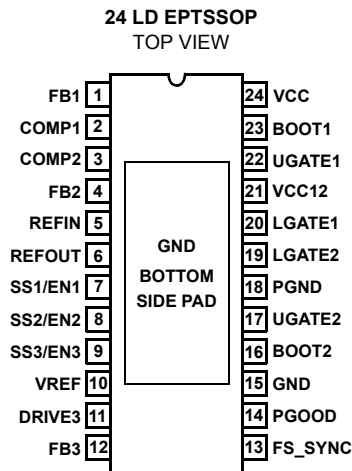
Ordering Information

PART NUMBER	PART MARKING	TEMP. (°C)	PACKAGE	PKG. DWG. #
ISL6534CV	ISL6534CV	0 to 70	24 Ld EPTSSOP (exposed pad)	M24.173B
ISL6534CVZ (See Note)	ISL6534CVZ	0 to 70	24 Ld EPTSSOP (exposed pad) (Pb-free)	M24.173B
ISL6534CR	ISL6534CR	0 to 70	32 Ld 5x5 QFN	L32.5x5
ISL6534CRZ (See Note)	ISL6534CRZ	0 to 70	32 Ld 5x5 QFN (Pb-free)	L32.5x5
ISL6534EVAL2	EVAL board			

NOTE: Intersil Pb-free plus anneal products employ special Pb-free material sets; molding compounds/die attach materials and 100% matte tin plate termination finish, which are RoHS compliant and compatible with both SnPb and Pb-free soldering operations. Intersil Pb-free products are MSL classified at Pb-free peak reflow temperatures that meet or exceed the Pb-free requirements of IPC/JEDEC J STD-020.

Add "-T" suffix for tape and reel.

Pinouts



NOTES:

1. BOOT2 and UGATE2 are different order in QFN.
2. NC is No Connect

Block Diagram

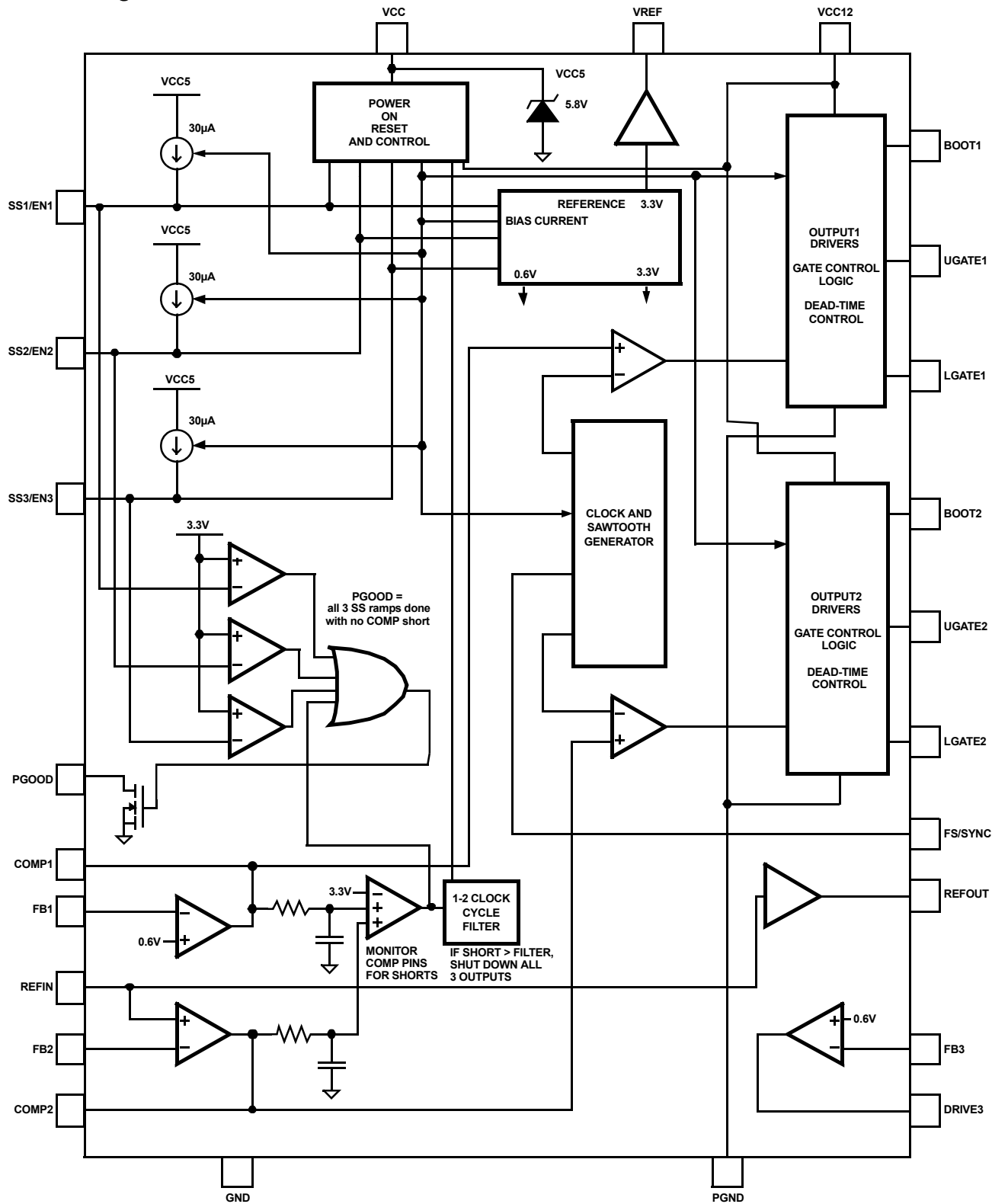


FIGURE 1. BLOCK DIAGRAM

Typical Application, DDRAM Controller

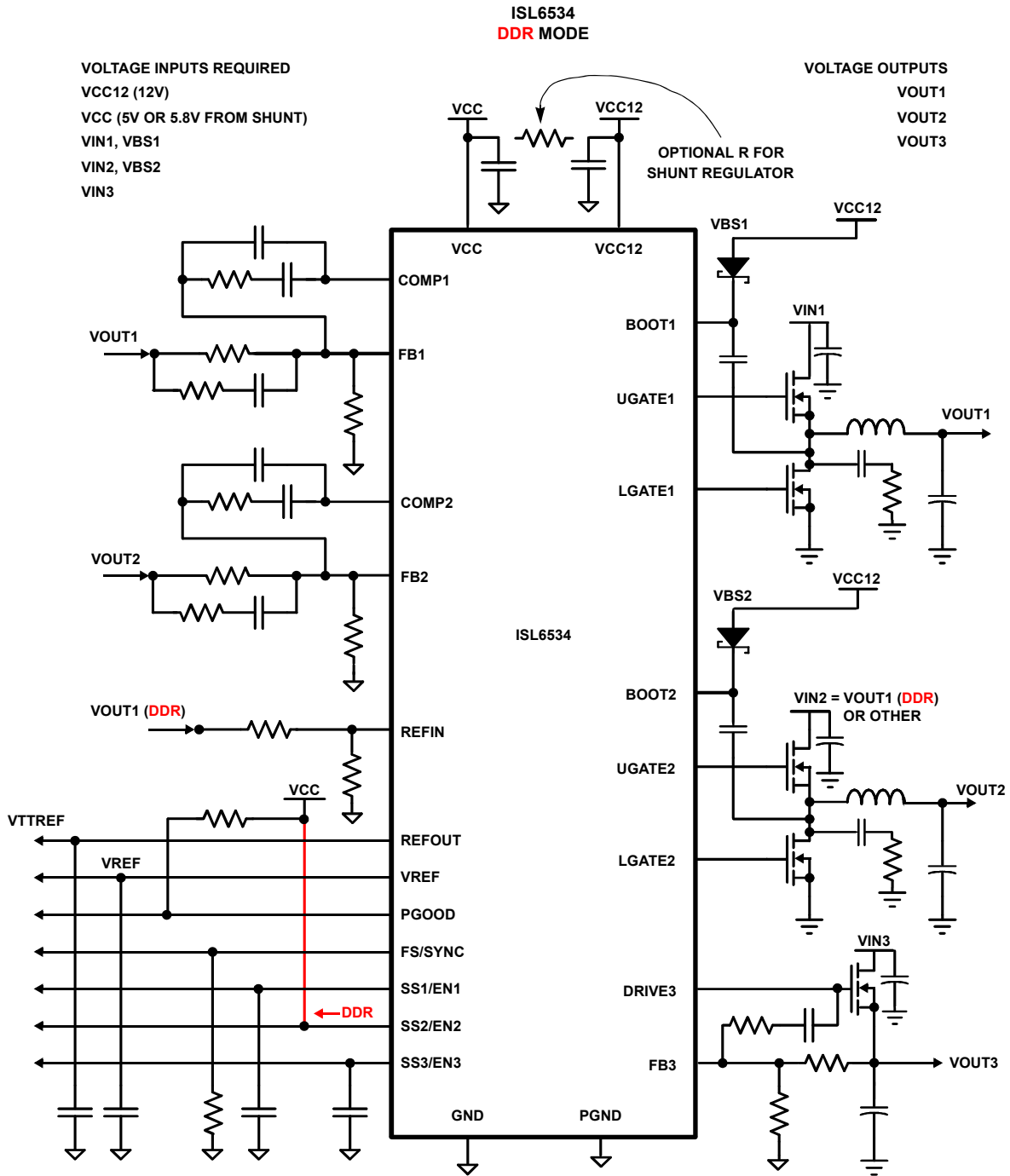
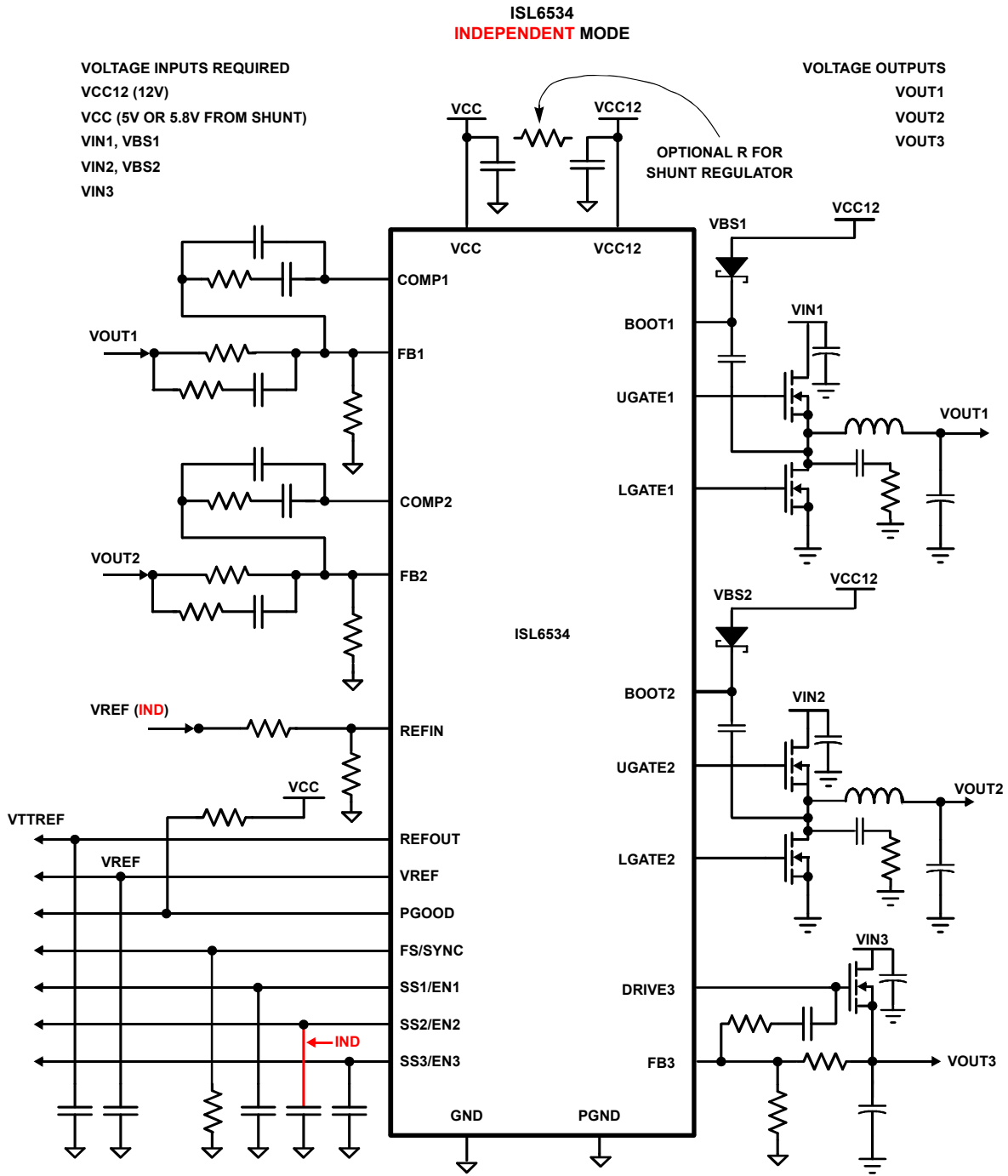


FIGURE 2. TYPICAL APPLICATION, DDRAM CONTROLLER

Typical Application, Independent Mode



NOTE: Not all components are necessary in all applications.

FIGURE 3. TYPICAL APPLICATION, INDEPENDENT MODE

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.