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JNK Headline: MPWR/STM/VSH Supply Inputs Tighten as Naphtha Closes/Carbon Black Shortfall Builds

Electronic-grade solvent supply entering constraint stage across Asia; allocation to non-contract customers stopped as of early March 2026

Feedstock disruption confirmed upstream: force majeure declarations and cracker utilization cuts across Taiwan, South Korea, and Singapore; raw material prices up approximately 30%

Conductive carbon black, a heavy petroleum feedstock derivative used in passive component manufacturing, is developing a parallel shortfall; passive component suppliers are the exposed end-customer

Base case: Q2 2026 fab-level solvent shortage; analog and passives are first to react with price increases

Companies of Interest: MU, MPWR, STM, TXN, ADI, NXPI, ON, Yageo, Murata, TDK, TSM

My Take

Our research indicates that the solvent shortage develops with the same early-stage signature JNK tracked with T-Glass and before that constraint became widely visible. At this point suppliers stop offering spot to non-contract customers, there is no product to buy at any price. The breadth of node exposure is notable: legacy analog, DRAM, NAND, and leading-edge logic all consume electronic-grade solvents, and no node is structurally insulated. The conductive carbon black shortfall adds a second vector into passive components, where in our view JNK research has flagged tightening utilization and pricing inflection. The two constraints are not linked mechanically, but they hit the same downstream passive component producers simultaneously.

UPSTREAM CASCADE

The disruption originates in petroleum naphtha. Electronic-grade solvents used in wafer cleaning and photolithography inter-step processes, including MMP, DMSO, and DAA, are naphtha-derived. Asian petrochemical producers source 70%-80% of their naphtha from the Middle East via the Strait of Hormuz. That route is effectively closed.

Confirmed as of early March 2026:

- Formosa Petrochemical (Taiwan): force majeure declared March 10
- LG Chem (South Korea): Daesan and Yeosu crackers cut to 54-73% utilization; classified as production cuts, no formal force majeure
- Lotte Chemical (South Korea): Daesan cracker at 70%; Yeosu cracker pulled two weeks early for maintenance; classified as production cuts
- PCS (Singapore): force majeure issued to all customers
- Ethylene and propylene output, the primary naphtha-derived feedstocks, falling across the region
- Raw material prices up approximately 30% with supply below demand

ALLOCATION MECHANISM

The same base chemical is sold at three purity tiers: semiconductor grade (highest), battery grade, and industrial/paint grade. In a shortage, Chinese domestic producers are diverting available volume to battery-grade customers, who represent larger purchase volumes and hold higher priority in allocation queues. Semiconductor-grade buyers, particularly non-contract customers, are being cut off from supply at both ends: feedstock shortage upstream and priority displacement at the allocation tier.

SCOPE OF EXPOSURE

Our research indicates no node is structurally insulated. The exposure is uniform across legacy analog fabs, memory (DRAM and NAND), and leading-edge logic. This breadth distinguishes this signal from a typical materials constraint, which in most cases clusters around specific process nodes or wafer sizes. Not this time.

CONDUCTIVE CARBON BLACK: PASSIVE COMPONENT SHORTFALL DEVELOPING

Conductive carbon black is a heavy petroleum feedstock derivative, distinct from the naphtha-derived solvents described above, but originating from the same upstream disruption. It is a critical input in passive component manufacturing, used as a conductive additive in resistors, certain capacitor formulations, and related components. A global supplier, well-known in the industry but with limited public profile, provides conductive carbon black specifically to passive component manufacturers at the semiconductor-grade tier.

Our research indicates a shortfall is developing quickly. The exposed end-customers are passive component producers, including the major Taiwan and Japanese passive suppliers in JNK coverage. This is a second-order effect of the same petroleum feedstock disruption: the Strait of Hormuz closure is pulling naphtha supply from one direction while heavy

petroleum feedstock availability tightens from the same root cause.

JNK has previously documented tightening utilization and pricing inflection across the passive component supply chain. Tantalum capacitor pricing moved in October 2025. Resistor demand ran 20-30% above prior year. Utilization at specialty passive fabs was already approaching 80%, the threshold where expansion decisions are triggered. A conductive carbon black shortfall arriving into that supply environment compounds the constraint.

SECONDARY DISRUPTION VECTORS

Our research surfaces two additional constraints tracked as emerging secondary signals:

- PCB chemical additives (fine chemical / resin / binder): European port shipments (Hamburg, Antwerp) to Singapore and Taiwan delayed. Dow Chemical has raised prices. Formosa Chemicals, Nan Ya Plastics {1303 TT}, and Dairen Chemical (Taiwan) have stopped supplying new customers. March shipments are already affected.
- Carbon fiber: artificial fiber is the raw material precursor; solvent is required to melt artificial fiber into the carbon fiber process. This disruption is not a semiconductor-specific risk but confirms breadth of the naphtha feedstock cascade.

These are tracked as emerging vectors adding to the current constraints.

MY VIEW ON ANALOG AND PASSIVE EXPOSURE

Our research indicates analog foundries running legacy nodes in China, serving MPWR, STM are the base case for Q2 2026 solvent exposure. These fabs are contract-light on solvent procurement and most directly in the path of allocation tightening. For passive components, the conductive carbon black shortfall arrives into a supply chain already running at elevated utilization with limited buffer. VISH, Yageo, Murata, and TDK are the most directly exposed passive producers in JNK coverage. The data gap that would confirm a hard shortage date is inventory buffer depth at tier-1 fabs and at leading passive producers. (who cares about passives you might think? Recall that if you are missing 1 component to finish the builds, regardless of price or function, companies will not complete build. (example: PMIC impact on Auto during Covid)

About This Update

This intelligence comes from JNK Research's Analog and Survey Trackers covering upstream chemical supply chains, wafer fabrication materials, and semiconductor manufacturing inputs. Supply chain signals provide 90 to 180-day advance visibility on constraints, allocation dynamics, and pricing trajectories affecting US-listed semiconductor and passive component companies.

Contact Scott Kaplan for institutional research inquiries (skaplan@jnkresearch.com) and access our Trackers.

Questions for Martin or want to discuss this note? Schedule a meeting HERE!

https://meetings.hubspot.com/mjacobs13/martin-1x1-nyc-jnkclients

Cheers,

Martin Jacobs

C: +1 970 403 2590 | mjacobs@jnkresearch.com | Bloomberg (UUID): 32095298

Managing Partner @ JNK Research™ LLC

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JNK Research™ LLC follows SEC Regulation AC and FINRA 2210/2241 standards

Process gases (He/Ne) Solvents Carbon black T-Glass CCL / Substrates / PCB

	Helium	Neon	Solvents	Carbon black	T-Glass	CCL	Substrates/PCB
SUPPLY CHAIN NODE							
Wafer fab All nodes; diameters	Ion implant coolant	DUV excimer laser	Cleaning; litho				
Advanced packaging CoWoS, InFO, EMIB, SoIC	Bonding atmosphere				Interposer substrate	Buildup film	Organic substrate
PCB fabrication FR-4, high-speed laminates				ESD jacket; trace	Dielectric layer	Core laminate	Board stack-up
Passive components MLCC, resistors, inductors				Conductive additive			
System assembly AI server, rack infra				DAC/AOC jacket			Motherboard; SFF
SEMICONDUCTOR DEVICE TYPE							
Logic (CPU/GPU/ASIC) Leading-edge 3nm–7nm	Process gases critical	DUV/EUV exposure	Every litho step		Interposer (CoWoS)	Package substrate	ABF substrate
HBM (HBM3/3E/4) DRAM stack; TSV	TSV bonding gas	Litho steps	Inter-layer clean		Interposer layer	MR-MUF substrate	Stack substrate
DRAM / NAND Samsung, SK Hynix, Micron	Process gases	Litho laser gas	Cell clean steps			Package substrate	Module PCB
Analog / mixed-signal Legacy nodes 28nm–180nm	Implant coolant		Highest exposure; no swap	Passive BOM		Lead frame; substrate	Board-level BOM
MCU / MPU STM, NXP, Renesas, TI	Process gases		Wet process steps	Decoupling caps		QFP/QFN substrate	Application PCB
Power (MOSFET/IGBT/SiC) Infineon, onsemi, STM	Implant; critical		Surface clean	Gate driver passives		TO/DFN substrate	Power module PCB
RF / wireless Qorvo, Skyworks, Murata	Process gases		GaAs/GaN clean	Filter passives	RF laminate	Low-loss CCL	Module substrate
END-MARKET VERTICAL; COMPOUND SCENARIO IMPACT							
AI / data center NVDA, AMD, hyperscalers	GPU fab gates	GPU litho gates	All logic; HBM	Cable; passive BOM	CoWoS interposer	ABF substrate	Server board
Automotive ADAS, EV powertrain, body	SiC/IGBT fab		Analog; MCU fab	High passive count	Radar/lidar PCB	ADAS board CCL	ECU substrate
Industrial Automation, robotics, energy	Power semi fab		Legacy analog fabs	Motor drive passives		Control board CCL	DIN rail boards
Comms / 5G infra RAN, core network, optical	RF fab gases	RF litho	GaAs/GaN process	Filters; passives	Low-loss RF board	High-freq CCL	Line card substrate
Consumer electronics Smartphone, PC, wearables	AP/modem fab	AP litho steps	Every SoC step	Board passives	Pkg substrate	Mainboard CCL	FPC; rigid PCB
Defense / aerospace Rad-hard, high-rel	Rad-hard implant	Litho; no alt	No substitution allowed		High-rel substrate	Mil-spec CCL	High-rel PCB
Medical devices Implantable, imaging, monitoring	Sensor fab gases		MEMS; analog	Passive reliability		Biocompat substrate	Class III PCB

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