

# PowerTech

*“Big Ideas in Big Power”*



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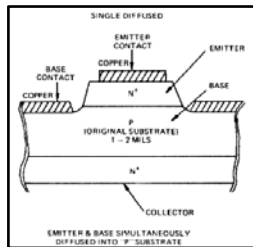
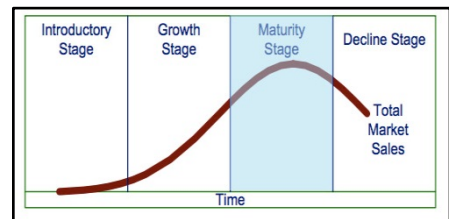
## About *PowerTech*.....

*PowerTech* was incorporated in 1968 with a single objective of satisfying the increasing demand for high current, high power silicon transistors for the military and aerospace power supply market. We provide high grade industrial and military type devices with current ratings from 10 to 2400 amperes and voltage rating from 60 to 250 volts. All devices feature ultra-low forward voltage drops.



Now under new management, *PowerTech* will stay true to its heritage by continuing to provide the market with the same high current, high power silicon Power transistor products just as we have done for over 45 years.

Fast forward to today and that same objective still defines *PowerTech*. However, today our focus is sustainment of the more than 50 critical military systems that need to be supported and maintained. *PowerTech* has spanned over 45 years supplying the same high current, high power silicon transistors. The need for our proprietary products is as critical today in the support phase of the weapon systems that use our products as they were more than 45 years ago in the development phase of those same systems.



*PowerTech* currently fabricates our own die which are used in our products. All products were designed with and utilize the largest military qualified power transistor chips available. *PowerTech's* proprietary metallization techniques enable the products to have superior electrical characteristics critical in power conversion applications. Since *PowerTech* products were originally designed for the demanding needs of the military and aerospace markets, inherent reliability has been designed in, rather than tested in.



Typical applications for *PowerTech* products include aircraft inverters, servo amplifiers for armament controls and motor speed controls, as well as power suppliers for airborne radar and electronic countermeasure equipment. *PowerTech* products are designed into many critical weapon systems currently supported today by our Military. The B-52, AN/AQS 13 and 18, F-16, Bradley Fighting Vehicle, Cruise Missile, Apache Helicopter, Munition Systems, ASPJ and ALQ/131 are a few of the critical systems we still support today.



## Our Technology.....

There is an old saying that “they just do not make them like they used to,” which usually refers to the quality of a product as compared to when it was first introduced. Here at *PowerTech*, we can proudly say that we still make them like we used to. It starts with our proprietary single diffused wafer technology. *PowerTech*’s fabrication process yields the lowest  $V_{CE(SAT)}$  rating of any competing product in the market today. The lowest  $V_{CE(SAT)}$  means the highest efficiency, which is extremely important for transistor operation above 30 Amps. In comparison to our competition’s product, which has a  $V_{CE(SAT)}$  in excess of 1.5V, *PowerTech* transistors have a  $V_{CE(SAT)}$  rating less than 0.75V at anywhere between 50 to 300 Amps. To achieve this, we use extra-heavy copper metalizing on our die thereby assuring maximum thermal and electrical conductivity

TYPICAL PRODUCTS		
$V_{CE(SAT)}$ Max.	VCE	PowerTech P/N
0.5V @ 300A	80V	PT9502
0.35V @ 200A	120V	PT9503
0.75V @ 70A	120V	2N5927

GUARANTEED SOA

yielding us the lowest  $V_{CE(SAT)}$ . Compared to our competition, their chips utilize a thin aluminum metallization with fragile, current limiting wires, whereas *PowerTech* product uses solid copper posts to achieve our superior performance rating.

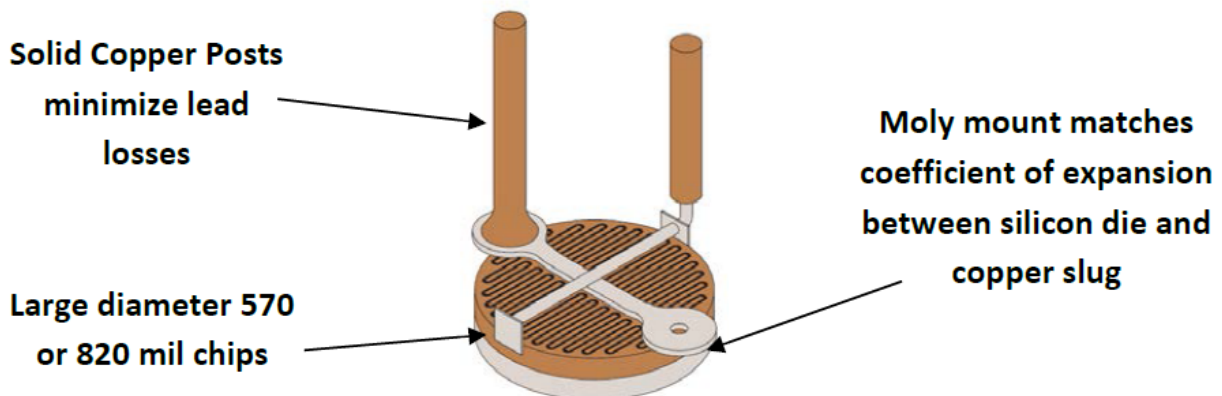
When designing with a power transistor, high voltage and current specs are not enough. If you have ever specified a power transistor above 50 amps, only to find it fail on the job, you know how high current specs may actually be misleading. The truth is, unless you see the SOA and  $E_{S/B}$  specifications of the transistor, there is no way of knowing whether a high current device has the guts to withstand a surge, and not blow out. This is why we publish both our Safe Operating Area and  $E_{S/B}$  specifications for all our products. We want you to see the kind of superior performance you can expect from only *PowerTech* high power transistors. Compare our  $E_{S/B}$  ratings from 1.5 to 6 joules, against the millijoules or unpublished ratings of other high current/voltage devices to see the difference.

TYPICAL PRODUCTS			
Ic	VCE	$E_{S/B}$	PowerTech P/N
1200A	80V	6.0J	PT-5007
400A	120V	6.0J	PT-9503
50A	200V	6.0J	PT-7511

GUARANTEED SOA

Our extra heavy copper metalizing assures maximum thermal and electrical conductivity and yields the highest resistance to second breakdown with the lowest  $V_{CE(SAT)}$ . *PowerTech* does not stop there. All die are mounted onto an integral moly-copper heat sink so we can categorize and pre-test our die at high currents to ensure maximum reliability in the final packaged device.

## ANATOMY OF A POWER TRANSISTOR



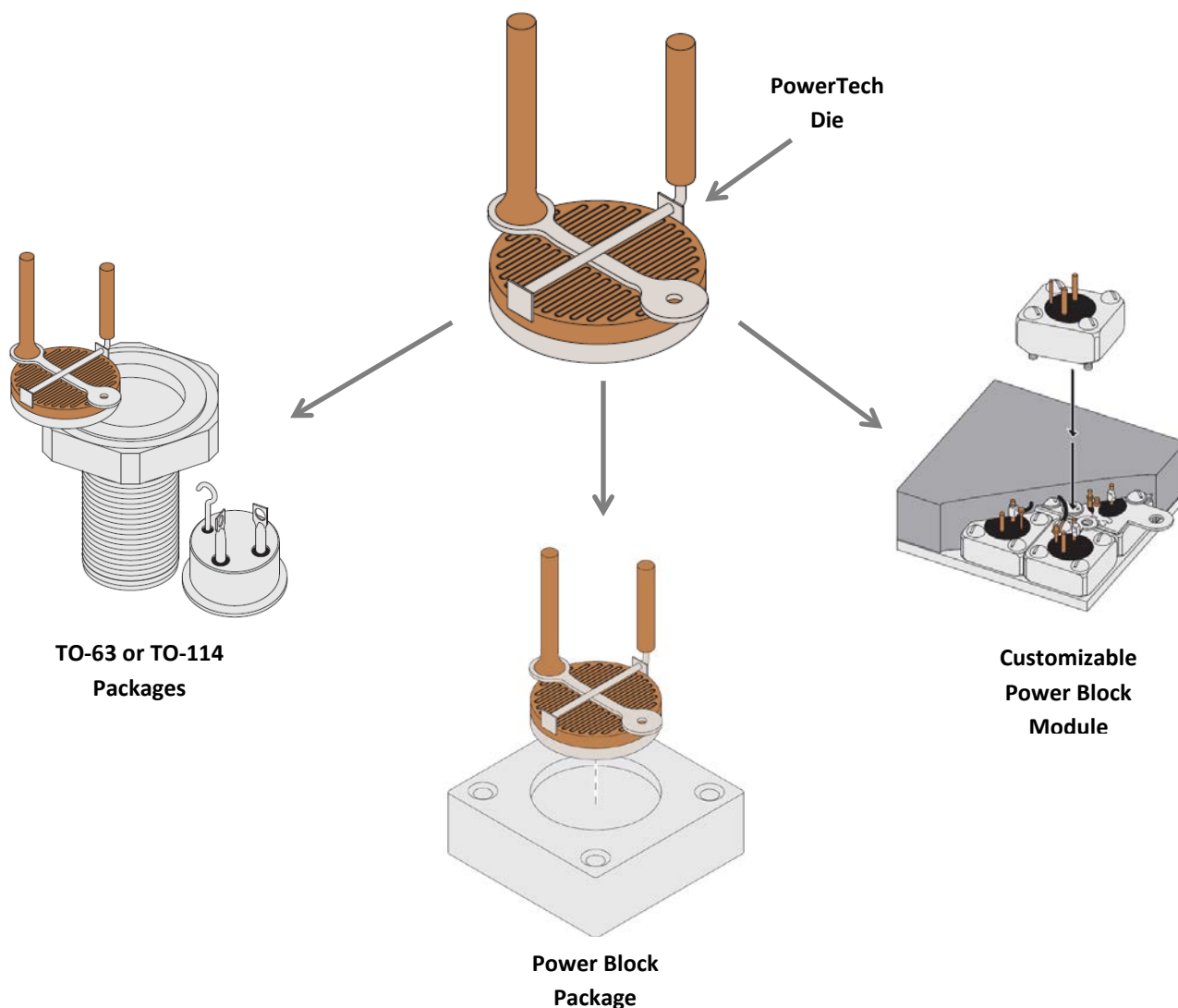
## Product Packaging.....

All *PowerTech* transistors are designed to handle high currents with low losses. Heavy copper emitter/base metallization and large emitter periphery combine to keep  $V_{CE(SAT)}$  low and maximize Safe Operating Area (SOA). A single *PowerTech* transistor or Darlington circuit can often replace several paralleled transistors, lowering lead inductance and eliminating the need for power robbing matching resistors.

*PowerTech* transistors are offered in hermetically sealed packages ideal for high reliability applications. All packages are designed with a large copper mounting base for efficient heat sinking to keep temperatures low and reliability high.

Designed to meet the demanding needs of the military and aerospace communities, *PowerTech* transistors exceed the stringent reliability requirements of MIL-PRF-19500. This capability is guaranteed through careful design and 100% device testing and screening.

Standard and custom package designs are available for all *PowerTech* products.



## Our Products.....

*PowerTech* offers a wide range of high current, high power transistor and Darlington products. All products are designed and tested to ensure the highest quality and reliability standards are met. All products are 100% tested prior to shipment.

### Power Transistors

P/N	Ic	V <sub>CEO</sub>	PKG
PT-7501	70	100	TO-63
PT-7502	70	120	TO-63
PT-7503	70	150	TO-63
PT-7509	70	200	TO-63
PT-3512	70	325	TO-63
PT-9504	80	100	TO-63
PT-7505	80	120	TO-63
PT-7506	80	150	TO-63
PT-7510	80	200	TO-63
PT-7507	90	100	TO-63
2N5926	90	120	TO-63
PT-7508	90	150	TO-63
PT-7511	90	200	TO-63
PT-5501	100	60	TO-63
PT-5502	100	80	TO-63
PT-502	100	100	TO-114
PT-501	100	120	TO-114
PT-500	100	150	TO-114

P/N	Ic	V <sub>CEO</sub>	PKG
PT-602	110	100	TO-114
PT-601	110	120	TO-114
PT-600	110	150	TO-114
PT-702	120	100	TO-114
2N5927	120	120	TO-114
PT-700	120	150	TO-114
PT-8502	150	100	TO-114
2N5928	150	120	TO-114
PT-6501	200	60	TO-114
PT-6502	200	80	TO-114
PT-9504	200	200	PB-500
PT-9503	400	120	PB-500
PT-9501	500	60	PB-500
PT-9502	500	80	PB-500

### Darlingtons

P/N	Ic	V <sub>CEO</sub>	PKG
MT-5000	250	60	PPS-250
MT-1042	250	80	PPS-250
MT-5001	250	80	PPS-250
MT-5002	500	60	PPS-500
MT-5003	500	80	PPS-500
MT-5004	800	60	PPS-1200
MT-5005	800	80	PPS-1200
MT-5006	1200	60	PPS-1200
MT-5007	1200	80	PPS-1200

## Legacy Products.....

*PowerTech* has over 2,500,000 die in our inventory of older Solitron Devices “Single Diffused” Power Transistor product. From this inventory, *PowerTech* can manufacture all of the Solitron part numbers shown below. In addition to our die inventory, *PowerTech* also has more than one million finished products in stock available for immediate delivery. These products are available in standard TO-3 and TO-66 packages.

### Solitron Part Numbers Available from *PowerTech*

2N3021	2N3741A	2N6262	SDT31305
2N3022	2N3771	2N6328	SDT31307
2N3023	2N3772	JAN2N3055	SDT402
2N3024	2N3773	JAN2N3055H	SDT403
2N3025	2N3878	JAN2N3441	SDT409
2N3026	2N3902	JAN2N3442	SDT410
2N3054	2N4231	JAN2N3771	SDT411
2N3055H	2N4232	JAN2N3772	SDT423
2N3057	2N4233	JANTX2N3055	SDT424
2N3418	2N4347	JANTX2N3055H	SDT425
2N3419	2N4348	JANTX2N3441	SDT6259
2N3420	2N5074	JANTX2N3442	SDT9202
2N3421	2N5075	JANTX2N3771	SDT9251
2N3441	2N5076	JANTX2N3772	SDT9301
2N3442	2N5077	JANTXV2N3441	SDT9302
2N3506	2N5157	JANTXV2N3442	SDT9303
2N3507	2N5466	JANTXV2N3771	SDT9304
2N3675	2N6253	JANTXV2N3772	SDT9305
2N3676	2N6254	SDM4003	SDT9306
2N3719	2N6257	SDM5003	SDT9307
2N3720	2N6258	SDT3055	SDT9308
2N3740A	2N6259	SDT31303	SDT9309
			SDT9704



## Legacy Product Support.....

*PowerTech* is also a source for many older power transistors previously manufactured by Westinghouse, Powerex, Microsemi, Raytheon, Solitron, and Hughes.

### Legacy Products Available from *PowerTech*

2N1936	2N2766	2N3472	2N6272	SPP215
2N1937	2N2769	2N3597	2N6273	163-04
2N2109	2N2770	2N3598	2N6324	163-06
2N2110	2N2771	2N3599	2N6325	163-08
2N2111	2N2772	2N3743	SPP2000	163-10
2N2112	2N2775	2N3746	SPP2001	163-12
2N2113	2N2776	2N3747	SPP2002	163-14
2N2114	2N2777	2N3748	SPP2086	163-16
2N2116	2N2778	2N3749	SPP2087	163-18
2N2117	2N2815	2N4002	SPP2088	163-20
2N2118	2N2816	2N4003	SPP2089	163-22
2N2119	2N2817	2N4210	SPP2090	163-24
2N2123	2N2818	2N4211	SPP2096	163-26
2N2124	2N2819	2N4865	SPP2097	163-28
2N2125	2N2820	2N4866	SPP2098	163-30
2N2126	2N2821	2N5250	SPP2099	164-04
2N2130	2N2822	2N5331	SPP2100	164-06
2N2131	2N2823	2N5539	SPP2101	164-08
2N2132	2N2824	2N5560	SPP2141	164-10
2N2133	2N2825	2N5584	SPP2142	164-12
2N2757	2N3149	2N5733	SPP2143	164-14
2N2758	2N3150	2N5966	SPP2144	164-16
2N2759	2N3151	2N5968	SPP2145	164-18
2N2760	2N3260	2N6046	SPP2146	164-20
2N2761	2N3265	2N6047	SPP2147	164-22
2N2763	2N3266	2N6048	SPP2148	164-24
2N2762	2N3470	2N6060	SPP2149	164-26
2N2765	2N3471	2N6062	SPP2150	164-28
				164-30



# **PowerTech**

*“Big Ideas in Big Power”*

**Proudly Made in  
the USA for More  
Than 45 Years**

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