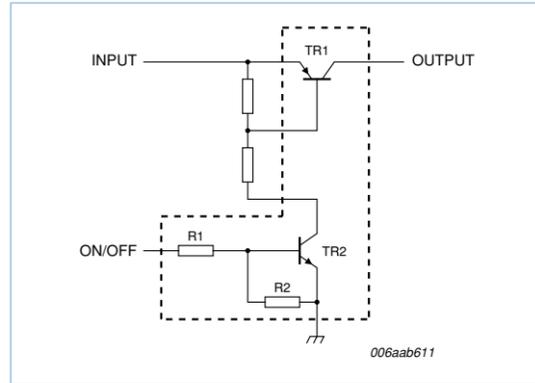
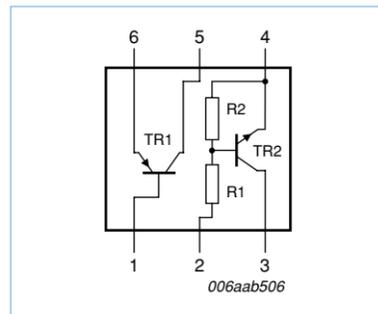


Application example

A small control (on/off) current (= base TR2) switches a high output (= collector TR1) current

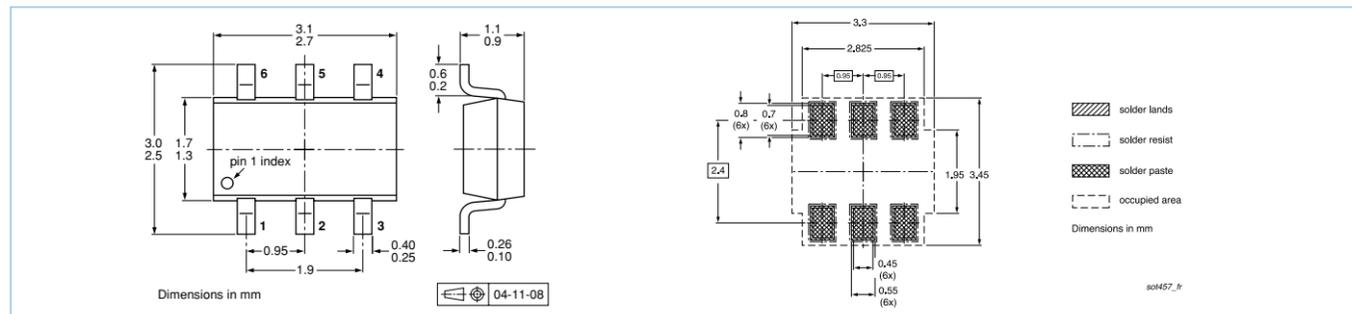


Configuration for new load switch families in SOT457



Modification of pinning compared to existing load switches due to optimized lead frame.

Outline drawing and soldering footprint of SOT457 (SC-74)



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NXP low V_{CEsat} load switches
PBL520xD and PBL560xD

Load switches with best-in-class current capability and lowest saturation voltage

Designed to simplify circuit design and reduce pick-and-place costs, these load switches combine an energy-saving low V_{CEsat} transistor with a resistor-equipped transistor (RET) in a single package. They're housed in SOT457 packages, offer the highest current-per-footprint ratings on the market, and are ideal for switching positive supply rails or ground-referenced loads.

Key features

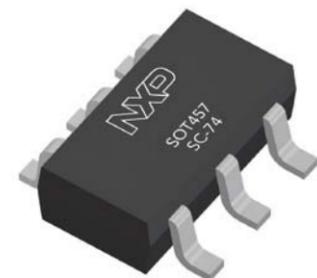
- ▶ PNP low V_{CEsat} transistor and NPN RET in small SOT457 SMD package
- ▶ V_{CEO} of 20 V or 60 V, with four resistor values available
- ▶ First to offer improved current capability
 - I_C : 1.8 A for 20 V
 - I_C : 1.5 A for 60 V
- ▶ Highest current per footprint area in loadswitch portfolio: 160 mA/mm² vs. 80-90 mA/mm²
- ▶ Reduction of V_{CEsat} by ~ 50% vs. last generation

Key benefits

- ▶ Space-saving solution
- ▶ Simplifies circuit design, reduces component count from four to one
- ▶ Fewer solder points for increased reliability
- ▶ Reduces pick-and-place costs
- ▶ Low threshold voltage (<1 V) compared to MOSFET
- ▶ AEC-Q101 qualified

Key applications

- ▶ Supply-line switches
- ▶ Battery-charger switches
- ▶ High-side switches for LEDs, drivers, and backlights
- ▶ Portable equipment



NXP
founded by Philips

NXP
PBL52021D
20 V, 1.8 A, R1/2 = 2.2 kΩ,
SOT457 (SC-74)

NXP
PBL56021D
60 V, 1.5 A, R1/2 = 2.2 kΩ,
SOT457 (SC-74)

NXP
PBL52022D
20 V, 1.8 A, R1/2 = 4.7 kΩ,
SOT457 (SC-74)

NXP
PBL56022D
60 V, 1.5 A, R1/2 = 4.7 kΩ,
SOT457 (SC-74)

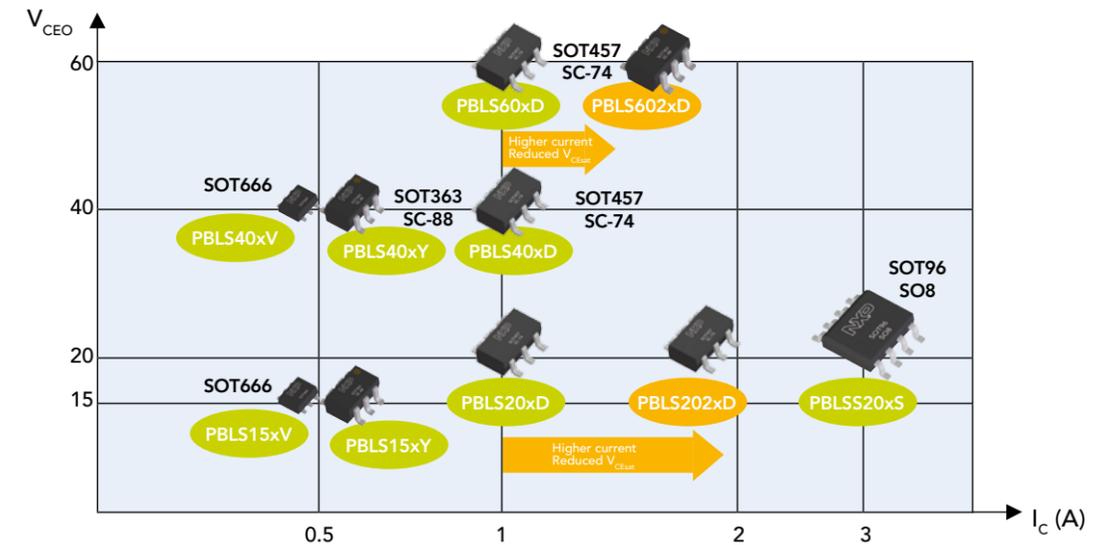
NXP
PBL52023D
20 V, 1.8 A, R1/2 = 10 kΩ,
SOT457 (SC-74)

NXP
PBL56023D
60 V, 1.5 A, R1/2 = 10 kΩ,
SOT457 (SC-74)

NXP
PBL52024D
20 V, 1.8 A, R1/2 = 22 kΩ,
SOT457 (SC-74)

NXP
PBL56024D
60 V, 1.5 A, R1/2 = 22 kΩ,
SOT457 (SC-74)

Portfolio extension: low V_{CEsat} load switches with improved current capability



Selection guide: low V_{CEsat} load switches

		Package			
		SOT96 (SO8)	SOT457 (SC-62)	SOT363 (SC-88)	SOT666
Size (mm)		4.9 x 3.9 x 1.75	2.9 x 1.5 x 1.0	2.0 x 1.25 x 0.95	1.6 x 1.2 x 0.55
P_{tot} (mW)		1500 ¹⁾	600 ¹⁾	300 ²⁾	300 ²⁾
V_{CEO} (V)	I_C (A)	V_{CEsat} typ (mV); $I_C = 0.5$ A	R1, R2 (kΩ)		
15	0.5	250	2.2		PBL1501Y, PBL1501V
			4.7		PBL1502Y, PBL1502V
			10		PBL1503Y, PBL1503V
			22		PBL1504Y, PBL1504V
20	1	150	2.2	PBL2001D	
			4.7	PBL2002D	
			10	PBL2003D	
			22	PBL2004D	
20	1.6	70	2.2	PBL52021D	
			4.7	PBL52022D	
			10	PBL52023D	
			22	PBL52024D	
20	3	75	2.2	PBL2001S	
			4.7	PBL2002S	
			10	PBL2003S	
40	1	170	2.2	PBL4001D	
			4.7	PBL4002D	
			10	PBL4003D	
			22	PBL4004D	
			47	PBL4005D	
60	1	180	2.2	PBL6001D	
			4.7	PBL6002D	
			10	PBL6003D	
			22	PBL6004D	
			47	PBL6005D	
60	1.3	100	2.2	PBL56021D	
			4.7	PBL56022D	
			10	PBL56023D	
			22	PBL56024D	

¹⁾ Device mounted on a ceramic PCB, Al₂O₃, standard footprint

²⁾ Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint
Types in **bold blue** represent new products and are included as samples