

**COLLMER SEMICONDUCTOR**  
**14368 PROTON ROAD**  
**DALLAS, TEXAS 75244**  
**1-800-527-0251**                      **214-233-1589**

**1 High speed switching transistors**

- Suitable for 50kHz class switching regulators.
- Allows transformers to be reduced in size.

Device type	V <sub>ceo</sub>	V <sub>ceo</sub>	V <sub>ceo</sub>	I <sub>c</sub>	P <sub>c</sub>	h <sub>FE</sub>	I <sub>c</sub>	V <sub>ce</sub>	Switching time (Typical)			Package	Net weight grams
	volts	volts	(sus) volts	cont. amps.	watts	min.	amps.	volts	t <sub>on</sub> μsec.	t <sub>s</sub> μsec.	t <sub>f</sub> μsec.		
2SC2929	500	400	400	3	60	20	0.5	5	0.5	1.0	0.3	TO-220AB	2
2SC2767	300	200	200	5	60	20	1	5	0.5	1.0	0.5	TO-220AB	2
2SC2243	650	400	400	5	120	10	2	5	0.5	1.0	0.3	TO-3	17
2SC2542	650	400	400	5	60	10	2	5	0.5	1.0	0.3	TO-220AB	2
2SC2624	650	400	400	5	100	10	2	5	0.5	1.0	0.3	TO-3P	6
2SC2769	300	200	200	10	100	20	2	5	0.5	1.0	0.3	TO-3P	6
2SC2245	650	400	400	10	120	10	4	5	0.5	1.0	0.3	TO-3	17
2SC2625	650	400	400	10	100	10	2	5	0.5	1.0	0.3	TO-3P	6
2SC2246	650	400	400	15	120	10	6	5	0.5	1.0	0.3	TO-3	17
2SC2623	650	400	400	20	120	10	8	5	0.5	1.0	0.3	TO-3	17
2SC3047	850	500	500	6	40	15	0.5	5	0.5	1.0	0.4	TO-220AB	2
ET206	850	500	500	10	80	15	1	5	0.5	1.5	0.3	TO-3P	6

**2 Super high speed switching transistors**

- t<sub>on</sub>: 0.2μsec., t<sub>f</sub>: 0.07μsec.
- Suitable for 100kHz class switching regulators

Device type	V <sub>ceo</sub>	V <sub>ceo</sub>	V <sub>ceo</sub>	I <sub>c</sub>	P <sub>c</sub>	h <sub>FE</sub>	I <sub>c</sub>	V <sub>ce</sub>	Switching time (Typical)			Package	Net weight grams
	volts	volts	(sus) volts	cont. amps.	watts	min.	amps.	volts	t <sub>on</sub> μsec.	t <sub>s</sub> μsec.	t <sub>f</sub> μsec.		
2SC3317	600	400	400	5	60	10	2	5	0.2	1.0	0.07	TO-220AB	2
2SC3318	600	400	400	10	100	10	5	5	0.2	1.0	0.07	TO-3P	6
2SC3319	600	400	400	10	120	10	5	5	0.2	1.0	0.07	TO-3	17
2SC3320	600	400	400	15	100	10	6	5	0.2	1.0	0.07	TO-3P	6
2SC3321	600	400	400	15	120	10	6	5	0.2	1.0	0.07	TO-3	17

**3 Large SOA switching transistors**

- An especially wide SOA with high-speed switching.
- Excellent surge resistant characteristics
- Suitable for switching regulators, series regulators, electronic ignitors and similar devices.

Device type	V <sub>ceo</sub>	V <sub>ceo</sub>	V <sub>ceo</sub>	I <sub>c</sub>	P <sub>c</sub>	h <sub>FE</sub>	I <sub>c</sub>	V <sub>ce</sub>	Switching time (Typical)			Package	Net weight grams
	volts	volts	(sus) volts	cont. amps.	watts	min.	amps.	volts	t <sub>on</sub> μsec.	t <sub>s</sub> μsec.	t <sub>f</sub> μsec.		
2SC2437	650	400	400	7	120	10	3	4	1.0	2.0	1.0	TO-3	18
2SC2686	650	400	400	7	100	10	3	4	1.0	2.0	1.0	TO-3P	6

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#### 4. High voltage high speed switching transistors

- The  $V_{CEO}$  is 900 volts and the transistor is best suited for use with 240VAC input switching regulators.
- Switching time is as  $t_f$ : 0.8 $\mu$ s.
- Can operate within the 30kHz range.

Device type	$V_{CEO}$ volts	$V_{CBO}$ volts	$V_{CEO}$ (sus) volts	$I_C$ cont. amps.	$P_C$ watts	$h_{FE}$ min.	$I_C$ amps.	$V_{CE}$ volts	Switching time (Max.)			Package	Net weight grams	Darling- ton
									$t_{on}$ $\mu$ sec.	$t_s$ $\mu$ sec.	$t_f$ $\mu$ sec.			
2SC3030	900	800	800	7	80	8	3	5	0.5	2.5	0.8	TO-3P	6	Fig. I
2SC3031	900	800	800	7	80	8	3	5	0.5	2.5	0.8	TO-3	17	Fig. I
2SC3032	900	700	700	7	80	8	3	5	0.5	2.5	0.8	TO-3P	6	Fig. I
2SC3033	900	700	700	7	80	8	3	5	0.5	2.5	0.8	TO-3	17	Fig. I
2SC3649	900	800	800	3	40	10	1	5	1.0	4.0	0.8	TO-220AB	2	—
2SC3850	900	800	800	3	80	10	1	5	1.0	4.0	0.8	TO-3P	6	—
2SC3851	900	800	800	5	80	10	2	5	1.0	4.0	0.8	TO-3P	6	—

#### 5. Low voltage high current switching transistors

- High speed switching performance
- $V_{CEO}$  (sus): 80 – 120 volts
- $I_C$  cont: 25 Amps
- Suitable for motor control applications such as DC-DC converters, golf carts, fork-lifts and industrial sewing machines using battery power supply.

Device type	$V_{CEO}$ volts	$V_{CBO}$ volts	$V_{CEO}$ (sus) volts	$I_C$ cont. amps.	$P_C$ watts	$h_{FE}$ min.	$I_C$ amps.	$V_{CE}$ volts	Switching time (Max.)			Package	Net weight grams
									$t_{on}$ $\mu$ sec.	$t_s$ $\mu$ sec.	$t_f$ $\mu$ sec.		
2SD913	200	80	80	25	150	20	25	5	0.5	1.5	0.2	TO-3	19
2SD1049	120	80	80	25	100	25	25	5	0.5	1.5	0.2	TO-3P	6
2SD914	200	120	120	25	150	20	25	5	0.5	1.5	0.2	TO-3	19

#### 6. Ultra high $\beta$ transistors (UBT)

- The DC current gain is extraordinarily high (min. 700).
- $h_{FE} - I_C$  characteristics are linear.
- Transistors for drive use not required.
- Ideally suited for series regulators, color TV, power supplies and similar devices.

Device type	$V_{CEO}$ volts	$V_{CBO}$ volts	$V_{CEO}$ (sus) volts	$I_C$ cont. amps.	$P_C$ watts	$h_{FE}$ min.	$I_C$ amps.	$V_{CE}$ volts	Switching time (Max.)			Package	Net weight grams	Darling- ton
									$t_{on}$ $\mu$ sec.	$t_s$ $\mu$ sec.	$t_f$ $\mu$ sec.			
2SD1128	150	100	100	5	40	700	1	4	—	—	—	TO-220AB	2	Fig. E
2SD920	250	200	200	5	120	700	1	4	—	—	—	TO-3	17	Fig. E
2SD921	250	200	200	5	100	700	1	4	—	—	—	TO-3P	6	Fig. E
2SD929	250	200	200	5	100	700	1	4	—	—	—	TO-3	17	Fig. E
2SD930	250	200	200	5	40	700	0.7	4	—	—	—	TO-220AB	2	Fig. E
2SD931	250	200	200	5	60	700	1	4	—	—	—	TO-3	17	Fig. E
2SD981	250	200	200	5	150	700	1	4	—	—	—	TO-3	13	Fig. E
2SD982	250	200	200	5	60	700	1	4	—	—	—	TO-220AB	2	Fig. E
2SD983	150	100	100	6	60	700	1	4	—	—	—	TO-220AB	2	Fig. E
2SD922	150	100	100	10	120	700	3	4	—	—	—	TO-3	17	Fig. E
2SD923	150	100	100	10	100	700	1	4	—	—	—	TO-3P	6	Fig. E

Darlington circuit schematic: See page 21