

# High-speed Switching Transistor (60V, 5A)

## 2SC5103 / 2SC5525

### ●Features

- 1) Low  $V_{CE(sat)}$  (Typ. 0.15V at  $I_C / I_B = 3 / 0.15A$ )
- 2) High speed switching ( $t_f$ : Typ. 0.1  $\mu s$  at  $I_C = 3A$ )
- 3) Wide SOA. (safe operating area)
- 4) Complements the 2SA1952 / 2SA2006.

### ●Absolute maximum ratings ( $T_a = 25^\circ C$ )

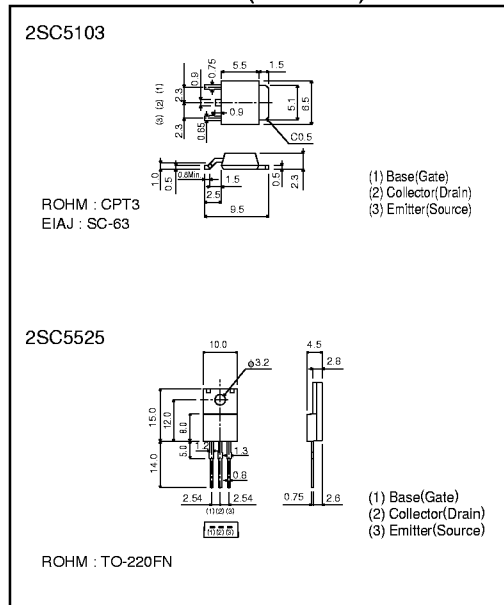
Parameter	Symbol	Limits	Unit	
Collector-base voltage	$V_{CBO}$	100	V	
Collector-emitter voltage	$V_{CEO}$	60	V	
Emitter-base voltage	$V_{EBO}$	5	V	
Collector current	$I_C$	5	A(DC)	
		10	A(Pulse) *	
Collector power dissipation	2SC5103	$P_C$	1	W
			10	W( $T_c = 25^\circ C$ )
		2SC5525	2	W
			25	W( $T_c = 25^\circ C$ )
Junction temperature	$T_j$	150	$^\circ C$	
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ C$	

\*Single pulse  $P_w = 100ms$

### ●Packaging specifications and $h_{FE}$

Type	2SC5103	2SC5525
Package	CPT3	TO-220FN
$h_{FE}$	PQ	EF
Code	TL	-
Basic ordering unit (pieces)	2500	500

### ●External dimensions (Units : mm)



### ●Electrical characteristics ( $T_a = 25^\circ C$ )

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	100	-	-	V	$I_C = 50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	60	-	-	V	$I_C = 1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	5	-	-	V	$I_E = 50\mu A$
Collector cutoff current	$I_{CBO}$	-	-	10	$\mu A$	$V_{CB} = 100V$
Emitter cutoff current	$I_{EBO}$	-	-	10	$\mu A$	$V_{EB} = 5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	0.15	0.3	V	$I_C / I_B = 3A / 0.15A$ *
		-	-	0.5	V	$I_C / I_B = 4A / 0.2A$ *
Base-emitter saturation voltage	$V_{BE(sat)}$	-	-	1.2	V	$I_C / I_B = 3A / 0.15A$ *
		-	-	1.5	V	$I_C / I_B = 4A / 0.2A$ *
DC current transfer ratio	2SC5103 2SC5525	$h_{FE}$	82 100	- 320	-	$V_{CE} / I_C = 2V / 1A$
Transition frequency	$f_T$	-	120	-	MHz	$V_{CB} = 10V, I_E = 0.5A, f = 30MHz$ *
Output capacitance	$C_{ob}$	-	80	-	pF	$V_{CE} = 10V, I_E = 0A, f = 1MHz$
Turn-on time	$t_{on}$	-	-	0.3	$\mu s$	$I_C = 3A, R_L = 10\Omega$
Storage time	$t_{stg}$	-	-	1.5	$\mu s$	$I_{B1} = -I_{B2} = 0.15A$
Fall time	$t_f$	-	0.1	0.3	$\mu s$	$V_{CC} = 30V$

\*: Measured using pulse current.