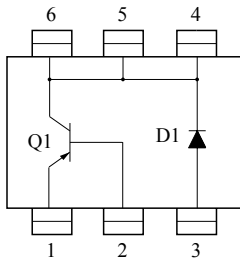


DC/DC CONVERTER APPLICATIONS.

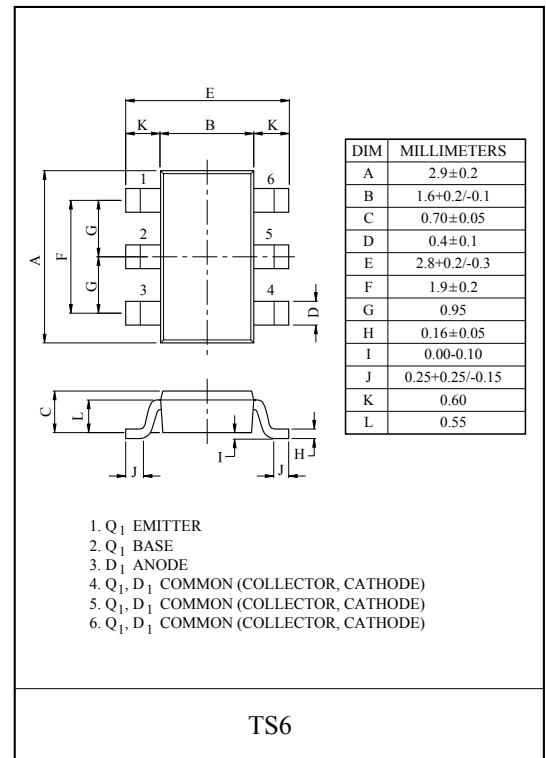
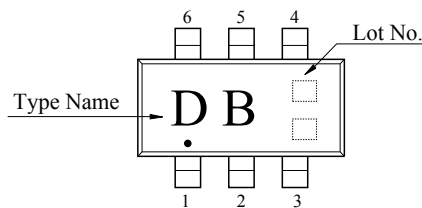
### FEATURES

- Composite type with a PNP transistor and a Schottky barrier diode contained in one package facilitating high-density mounting.
- The KTX512T is formed with two chips, one being equivalent to the KTA1535T and the other the KDR411S, encapsulated in one packages.
- Ultrasmall package facilitates miniaturization in end products (mounting height 0.7mm).

### EQUIVALENT CIRCUIT (TOP VIEW)



Marking



### MAXIMUM RATING (Ta=25°C)

Transistor Q<sub>1</sub>

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V <sub>CBO</sub>	-20	V
Collector-Emitter Voltage		V <sub>CEO</sub>	-20	V
Emitter-Base Voltage		V <sub>EBO</sub>	-5	V
Collector Current	DC	I <sub>C</sub>	-3	A
	Pulse	I <sub>CP</sub>	-5	A
Base Current		I <sub>B</sub>	600	mA
Collector Power Dissipation		P <sub>C</sub> *	0.9	W
Junction Temperature		T <sub>j</sub>	150	°C
Storage Temperature Range		T <sub>stg</sub>	-55 ~ 150	°C

\* Package mounted on a ceramic board (600mm<sup>2</sup> × 0.8mm)

Diode (SBD) D<sub>1</sub>

CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Reverse Voltage	V <sub>RRM</sub>	40	V
DC Reverse Voltage	V <sub>R</sub>	20	V
Average Output Current	I <sub>D</sub>	0.5	A
Peak Forward Surge Current	I <sub>FSM</sub>	3	A
Junction Temperature	T <sub>j</sub>	125	°C
Storage Temperature Range	T <sub>stg</sub>	-40 ~ 125	°C

# KTX512T

## ELECTRICAL CHARACTERISTICS (Ta=25°C)

Transistor Q<sub>1</sub>

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I <sub>CBO</sub>	V <sub>CB</sub> =-12V, I <sub>E</sub> =0	-	-	-0.1	μA
Emitter Cut-off Current		I <sub>EBO</sub>	V <sub>EB</sub> =-4V, I <sub>C</sub> =0	-	-	-0.1	μA
Collector-Base Breakdown Voltage		V <sub>(BR)CBO</sub>	I <sub>C</sub> =-10μA, I <sub>E</sub> =0	-20	-	-	V
Collector-Emitter Breakdown Voltage		V <sub>(BR)CEO</sub>	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-20	-	-	V
Emitter-Base Breakdown Voltage		V <sub>(BR)EBO</sub>	I <sub>E</sub> =-10μA, I <sub>C</sub> =0	-5	-	-	V
Collector-Emitter Saturation Voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> =-1.5A, I <sub>B</sub> =-30mA	-	-130	-165	mV
Base-Emitter Saturation Voltage		V <sub>BE(sat)</sub>	I <sub>C</sub> =-1.5A, I <sub>B</sub> =-30mA	-	-0.85	-1.2	V
DC Current Gain		h <sub>FE</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-500mA	200	-	560	
Transition Frequency		f <sub>T</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-500mA	-	160	-	MHz
Collector Output Capacitance		C <sub>ob</sub>	V <sub>CB</sub> =-10V, f=1MHz	-	45	-	pF
Switching Time	Turn-On Time	t <sub>on</sub>	<p>PW=20μs DC≤1%</p> <p>INPUT</p> <p>50Ω</p> <p>VR</p> <p>1kΩ</p> <p>220μF</p> <p>470μF</p> <p>RL</p> <p>OUTPUT</p> <p>V<sub>BE</sub>=5V</p> <p>V<sub>CC</sub>=-5V</p> <p>-20I<sub>B1</sub>=20I<sub>B2</sub>=I<sub>C</sub>=-1.5A</p>	-	30	-	nS
	Storage Time	t <sub>stg</sub>		-	90	-	
	Fall Time	t <sub>f</sub>		-	10	-	

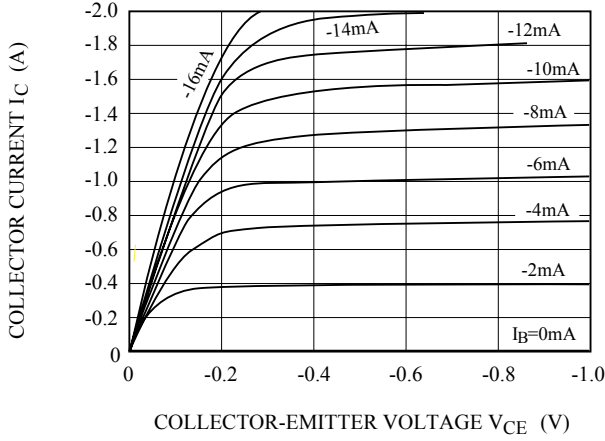
Diode (SBD) D<sub>1</sub>

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	V <sub>F</sub> (1)	I <sub>F</sub> =10mA	-	-	0.3	V
	V <sub>F</sub> (2)	I <sub>F</sub> =500mA	-	-	0.5	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =10V	-	-	30	μA
Total Capacitance	C <sub>T</sub>	V <sub>R</sub> =10V, f=1MHz	-	20	-	pF

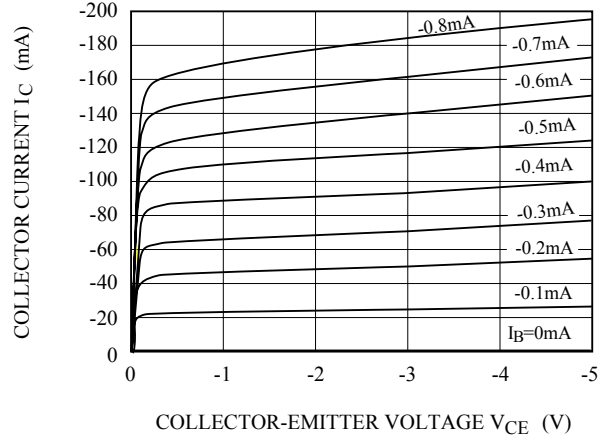
# KTX512T

Q<sub>1</sub> (TRANSISTOR)

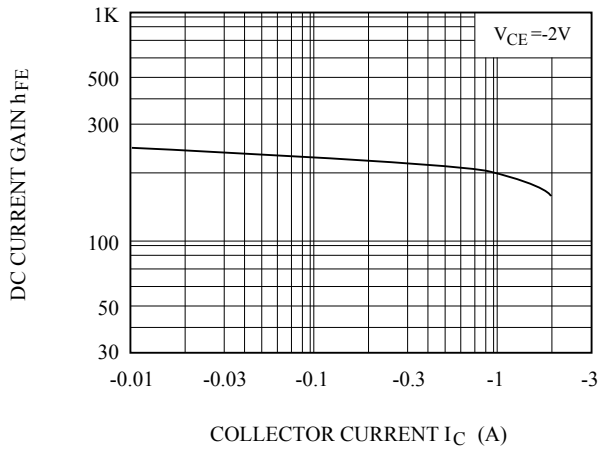
$I_C - V_{CE}$



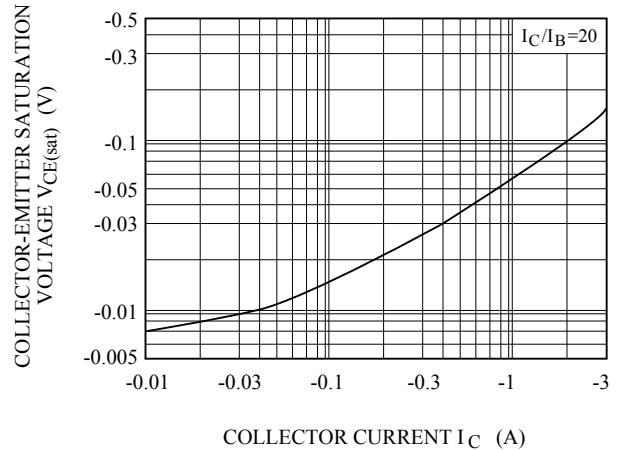
$I_C - V_{CE}$



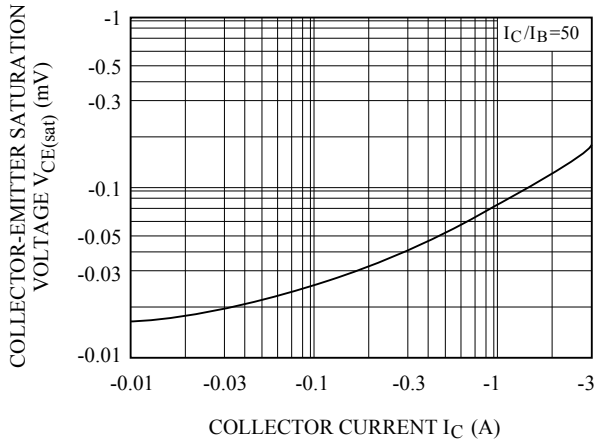
$h_{FE} - I_C$



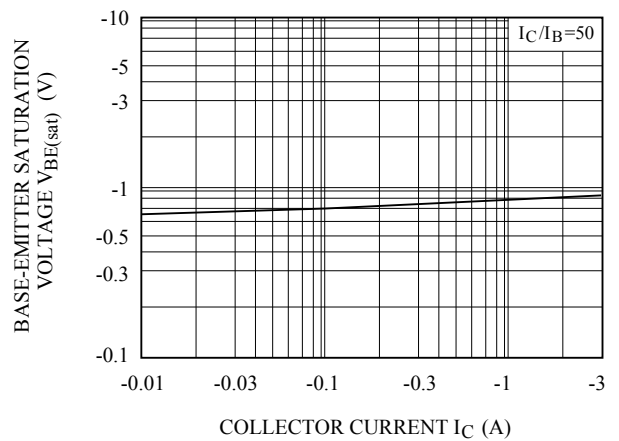
$V_{CE(sat)} - I_C$



$V_{CE(sat)} - I_C$

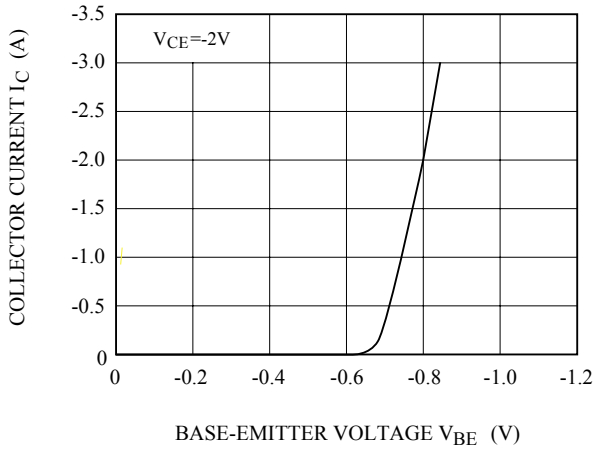


$V_{BE(sat)} - I_C$

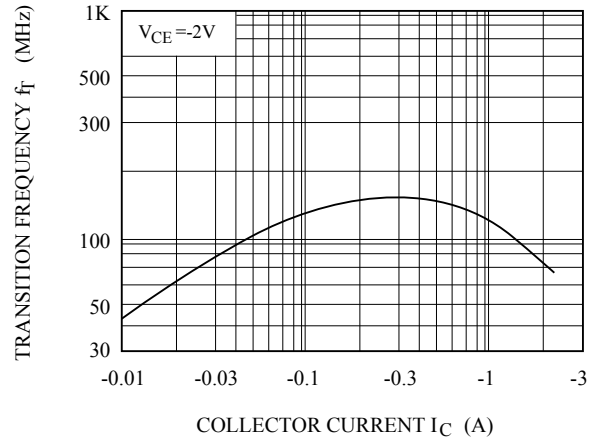


# KTX512T

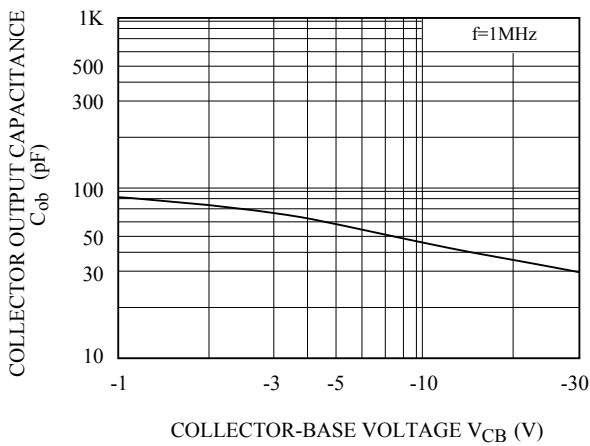
$I_C - V_{BE}$



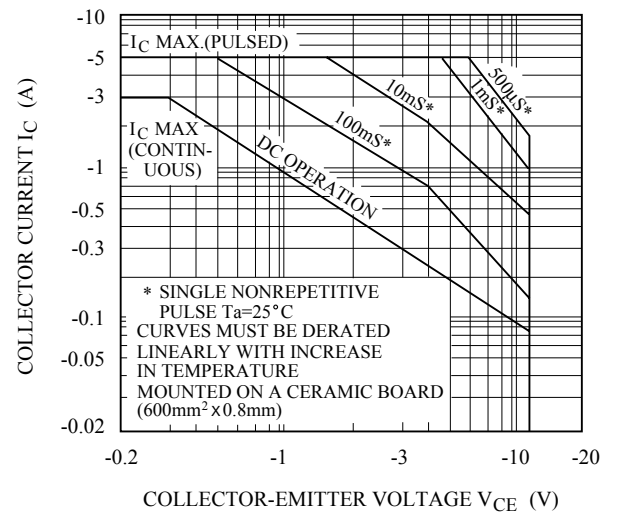
$f_T - I_C$



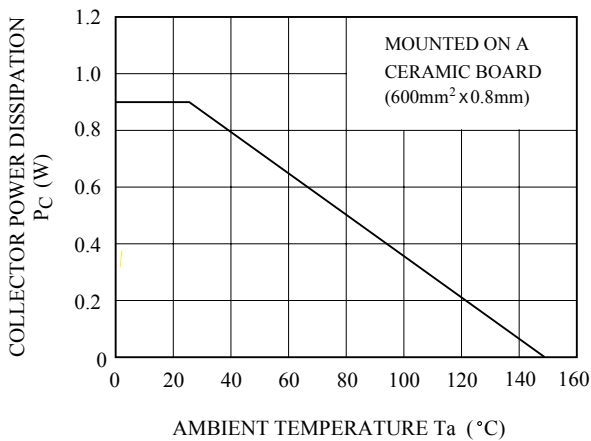
$C_{ob} - V_{CB}$



SAFE OPERATING AREA

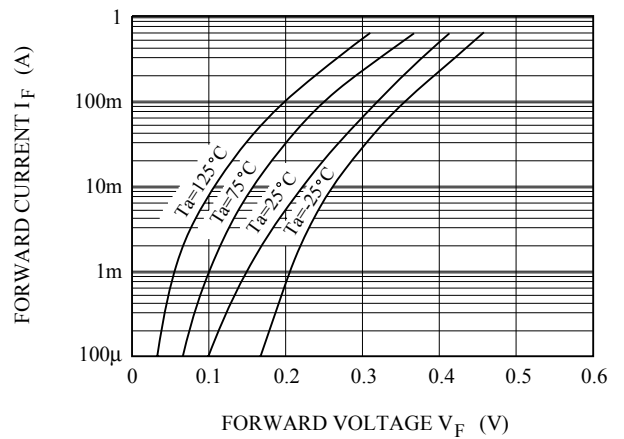


$P_c - T_a$



$D_1$  (SBD)

$I_F - V_F$



# KTX512T

