UTC 2SD1804 NPN EPITAXIAL PLANAR SILICON TRANSISTOR

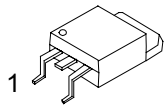
HIGH CURRENT SWITCHING APPLICATIONS

APPLICATIONS

The UTC 2SD1804 applies to relay drivers, high-speed inverters, converters, and other general high-current switching applications.

FEATURES

*Low collector-to-emitter saturation voltage
*High current and high f_T
*Excellent linearity of h_{FE}.
*Fast switching time
*Small and slim package making it easy to make 2SD1804 applied sets smaller.



TO-252

1: BASE 2: COLLECTOR 3: EMITTER

ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Dissipation	Pc	1	W
	Tc=25°C	20	W
Collector Current	Ic	8	A
Collector Current(PULSE)	Icp	12	A
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cutoff Current	I_{CBO}	V_{CB}=40V,I_E=0			1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V,I_C=0			1	μA
DC Current Gain	h_{FE1}	V_{CE}=2V, Ic=0.5A	70		400	
	h_{FE2}	V_{CE}=2V, Ic=6A	35			
Gain-Bandwidth Product	f_T	V_{CE}=5V,Ic=1A		180		MHz
Output Capacitance	Cob	V_{CE}=10V,f=1MHz		65		pF
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=4A,I_B=0.2A		200	400	mV
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=4A,I_B=0.2A		0.95	1.3	V

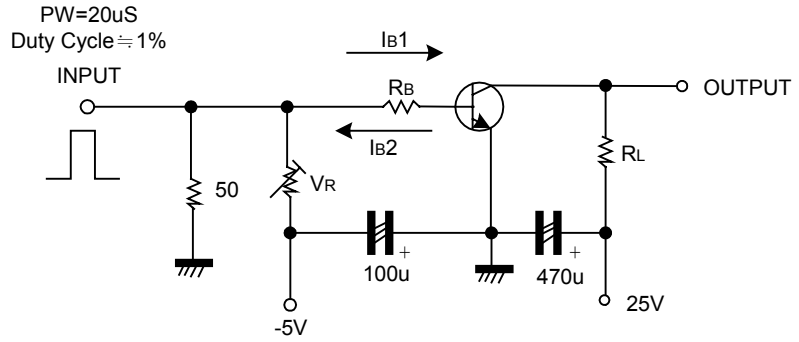
UTC 2SD1804 NPN EPITAXIAL PLANAR SILICON TRANSISTOR

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA,I_E=0	60			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA,R_{BE}=∞	50			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA,I_C=0	6			V
Storage Time	tstg	See test circuit		500		ns
Fall Time	tf	See test circuit		20		ns

CLASSIFICATION OF h_{FE1}

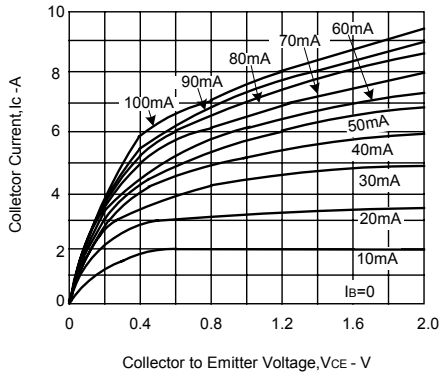
RANK	Q	R	S	T
RANGE	70-140	100-200	140-280	200-400

SWITCHING TIME TEST CIRCUIT

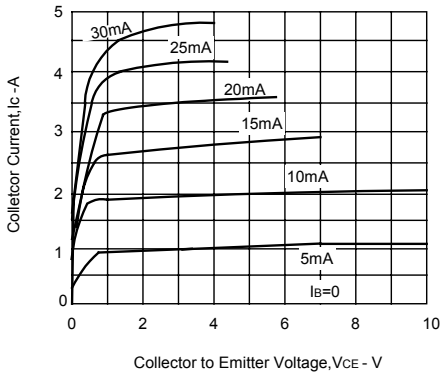


Ic=10 I_{B1}= -10 I_{B2}=4A
Unit(resistance:Ω,capacitance:F)

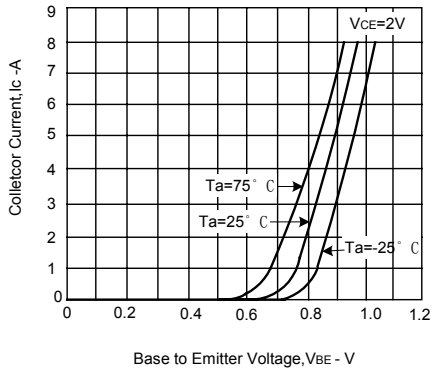
Ic -V_{CE}



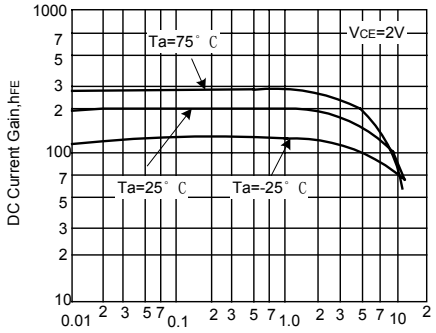
Ic -V_{CE}



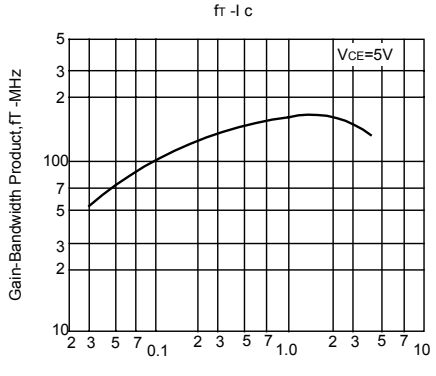
Ic -V_{BE}



h_{FE} -I c



f_T -I c



Cob -V_{CB}