



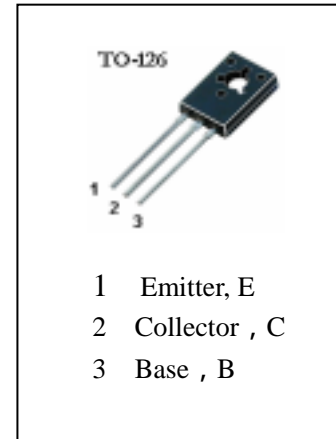
# HSBD140

## APPLICATIONS

Medium Power Linear switching Applications

### ABSOLUTE MAXIMUM RATINGS ( $T_a=25$ )

$T_{stg}$ —Storage Temperature.....	-55~150
$T_j$ —Junction Temperature.....	150
$P_C$ —Collector Dissipation ( $T_c=25$ ) .....	12.5W
$P_C$ —Collector Dissipation ( $T_A=25$ ) .....	1.25W
$V_{CBO}$ —Collector-Base Voltage.....	-80V
$V_{CEO}$ —Collector-Emitter Voltage.....	-80V
$V_{EBO}$ —Emitter-Base Voltage.....	-5V
$I_C$ —Collector Current( Pulse ).....	-3A
$I_C$ —Collector Current ( DC ) .....	-1.5A
$I_B$ —Base Current.....	-0.5A



### ELECTRICAL CHARACTERISTICS ( $T_a=25$ )

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
$I_{CBO}$	Collector Cut-off Current			-0.1	$\mu A$	$V_{CB}=-30V, I_E=0$
$I_{EBO}$	Emitter-Base Cut-off Current			-10	$\mu A$	$V_{EB}=-5V, I_C=0$
* $h_{FE(1)}$	DC Current Gain	25				$V_{CE}=-2V, I_C=-5mA$
* $h_{FE(2)}$		25				$V_{CE}=-2V, I_C=-0.5A$
* $h_{FE(3)}$		40		250		$V_{CE}=-2V, I_C=-150mA$
* $V_{CE(sat)}$	Collector-Emitter Saturation Voltage			-0.5	V	$I_C=-500mA, I_B=-50mA$
* $V_{BE(ON)}$	Base-Emitter On Voltage			-1.0	V	$I_C=-0.5A, V_{CE}=-2V$
* $V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	-80				$I_C=-30mA, I_B=0$

\*Pulse Test:  $PW=350 \mu s$ , Duty Cycle=2% Pulsed

### $h_{FE(3)}$ Classification

Classification	6	10	16
$h_{FE(3)}$	40~100	63~160	100~250



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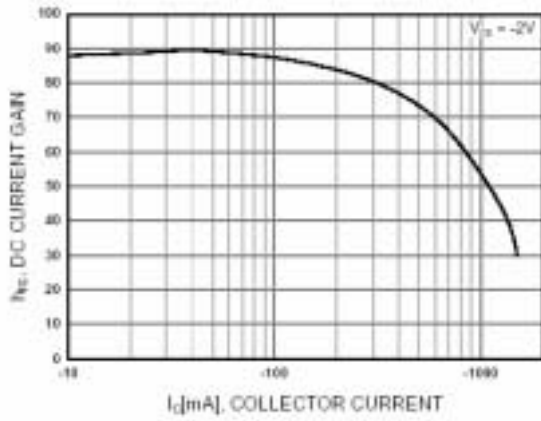


Figure 1. DC current Gain

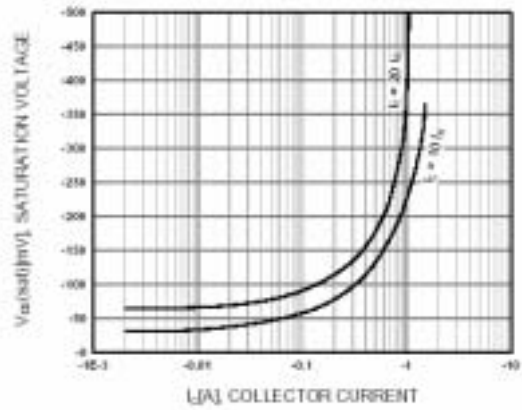


Figure 2. Collector-Emitter Saturation Voltage

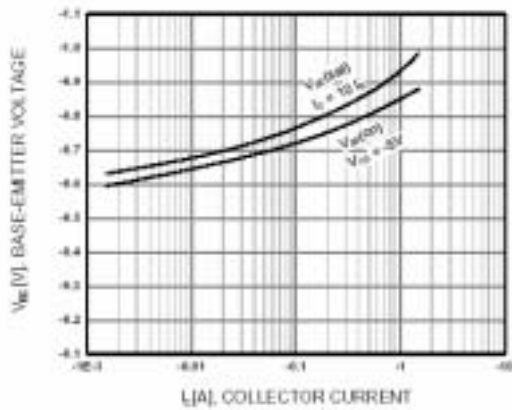


Figure 3. Base-Emitter Voltage

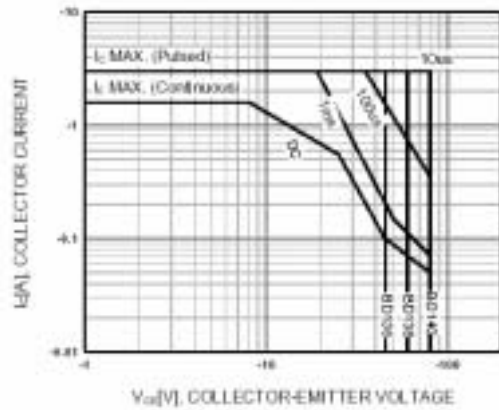


Figure 4. Safe Operating Area

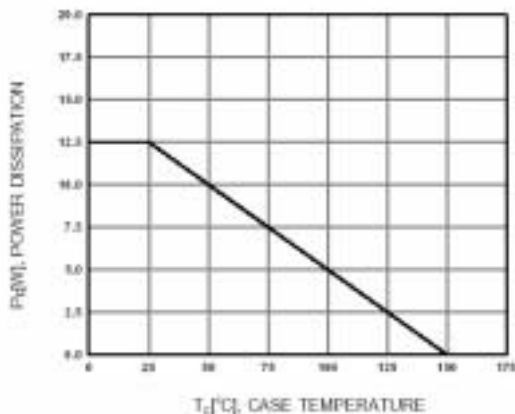


Figure 5. Power Derating