

isc Silicon NPN Darlington Power Transistor

2SD1410

DESCRIPTION

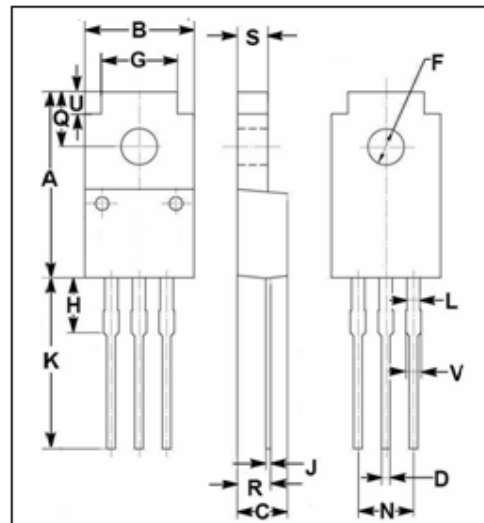
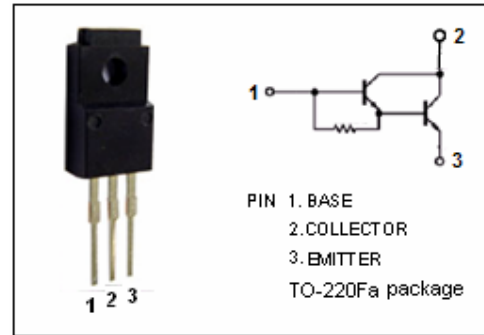
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 250V(\text{Min})$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 2.0V(\text{Max}) @ I_C = 4A$
- High DC Current Gain  
:  $h_{FE} = 2000(\text{Min}) @ I_C = 2A, V_{CE} = 2V$

APPLICATIONS

- Igniter applications
- High voltage switching applications

ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	300	V
$V_{CEO}$	Collector-Emitter Voltage	250	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	6	A
$I_B$	Base Current-Continuous	1	A
$P_C$	Collector Power Dissipation @ $T_a=25^\circ\text{C}$	2.0	W
	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	30	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



DIM	mm	
	MIN	MAX
A	16.85	17.15
B	9.90	10.10
C	4.35	4.65
D	0.75	0.80
F	3.20	3.40
G	6.90	7.10
H	5.15	5.45
J	0.45	0.75
K	13.35	13.65
L	1.10	1.30
N	4.98	5.18
Q	4.85	5.15
R	2.95	3.25
S	2.70	2.90
U	1.75	2.05
V	1.30	1.50

**isc Silicon NPN Darlington Power Transistor****2SD1410****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.5\text{A}; L=40\text{mH}$	250			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=40\text{mA}$			2.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=40\text{mA}$			2.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=300\text{V}; I_E=0$			500	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			500	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C=2\text{A}; V_{CE}=2\text{V}$	2000			
$h_{FE-2}$	DC Current Gain	$I_C=4\text{A}; V_{CE}=2\text{V}$	200			
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1\text{MHz}$		35		pF

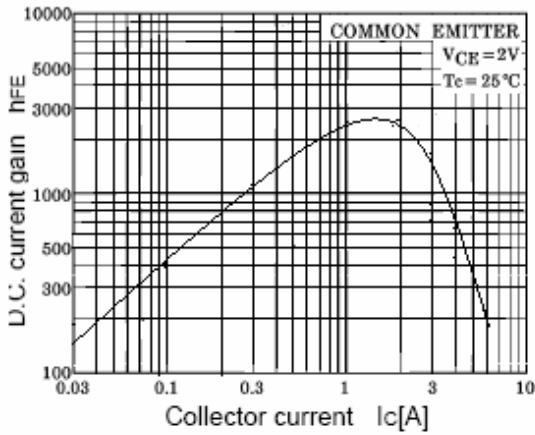
## Switching times

$t_{on}$	Turn-on Time	$I_C=4\text{A}, I_{B1}=-I_{B2}=40\text{mA}$ $R_L=25\Omega; V_{CC}=100\text{V}$		1.0		$\mu\text{s}$
$t_{stg}$	Storage Time			8.0		$\mu\text{s}$
$t_f$	Fall Time			5.0		$\mu\text{s}$

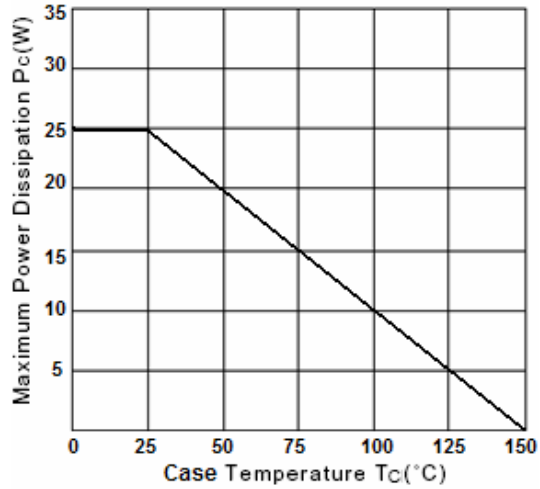
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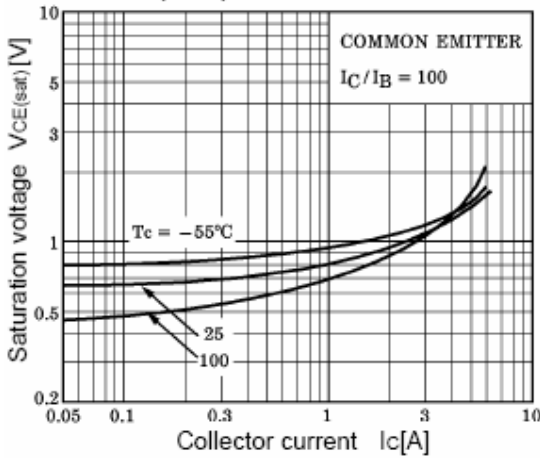
**$h_{FE}-I_C$  Characteristics**



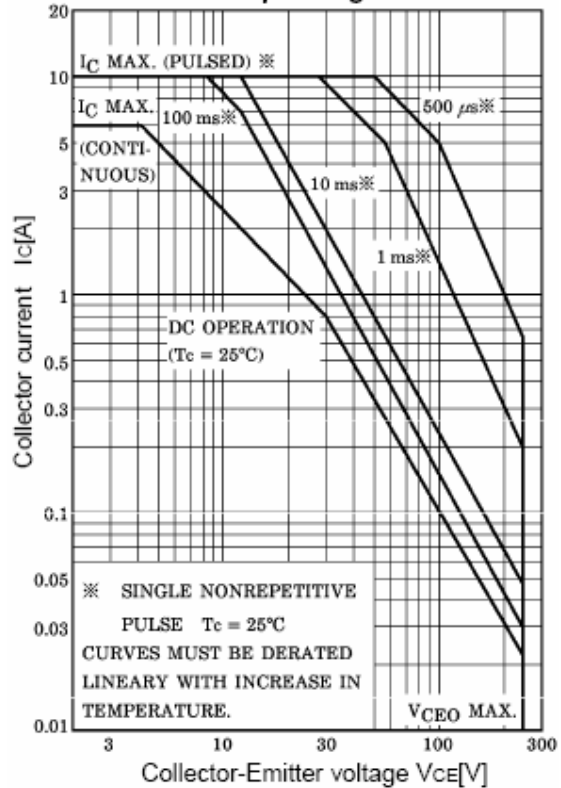
**Power Derating**



**$V_{CE(sat)}-I_C$  Characteristics**



**Safe Operating Area**



**$V_{BE(sat)}-I_C$  Characteristics**

