

DESCRIPTION The 2SD1818 is a Low $V_{CE(sat)}$ transistor which has a large current capability and wide SOA.
It is suitable for DC-DC converter, or driver of solenoid or motor.

FEATURES

- Low Collector Saturation Voltage.
 $V_{CE(sat)} = 0.25 \text{ V MAX. (@ } I_C/I_B = 1.5 \text{ A/0.15 A)}$
- Large Current
 $I_{C(DC)} = 3.0 \text{ A}$, $I_{C(pulse)} = 5.0 \text{ A}$
- High Total Power Dissipation: $P_T = 1.3 \text{ W}$
- Complementary to 2SB1217

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures			
Storage Temperature		-55 to +150 °C	
Junction Temperature		+150 °C Maximum	
Maximum Power Dissipations			
Total Power Dissipation ($T_a = 25^\circ\text{C}$)	...	1.3	W
Total Power Dissipation ($T_c = 25^\circ\text{C}$)	...	10	W
Maximum Voltages and Currents ($T_a = 25^\circ\text{C}$)			
V_{CBO}	Collector to Base Voltage	60	V
V_{CEO}	Collector to Emitter Voltage	60	V
V_{EBO}	Emitter to Base Voltage	7.0	V
$I_{C(DC)}$	Collector Current	3.0	A
$I_{C(pulse)}$	Collector Current*	5.0	A
$I_{B(DC)}$	Base Current	0.5	A

* $PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50 \%$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
$V_{CE(sat)}^{**}$	Collector Saturation Voltage		0.14	0.25	V	$I_C = 1.5 \text{ A}$, $I_B = 0.15 \text{ A}$
$V_{BE(sat)}^{**}$	Base Saturation Voltage		0.9	1.2	V	$I_C = 1.5 \text{ A}$, $I_B = 0.15 \text{ A}$
h_{FE1}^{**}	DC Current Gain	60			—	$V_{CE} = 2.0 \text{ V}$, $I_C = 0.2 \text{ A}$
h_{FE2}^{**}	DC Current Gain	100		400	—	$V_{CE} = 2.0 \text{ V}$, $I_C = 0.6 \text{ A}$
h_{FE3}^{**}	DC Current Gain	50			—	$V_{CE} = 2.0 \text{ V}$, $I_C = 2.0 \text{ A}$
I_{CBO}	Collector Cutoff Current			10	μA	$V_{CB} = 60 \text{ V}$, $I_E = 0$
I_{EBO}	Emitter Cutoff Current			10	μA	$V_{EB} = 7.0 \text{ V}$, $I_C = 0$
t_{on}	Turn On Time		0.15	0.5	μs	$I_C = 2.0 \text{ A}$, $I_{B1} = -I_{B2} = 0.2 \text{ A}$ $R_L = 5.0 \Omega$, $V_{CC} \approx 10 \text{ V}$
t_{stg}	Storage Time		0.75	2.0	μs	
t_f	Fall Time		0.2	0.5	μs	

** $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2 \%$

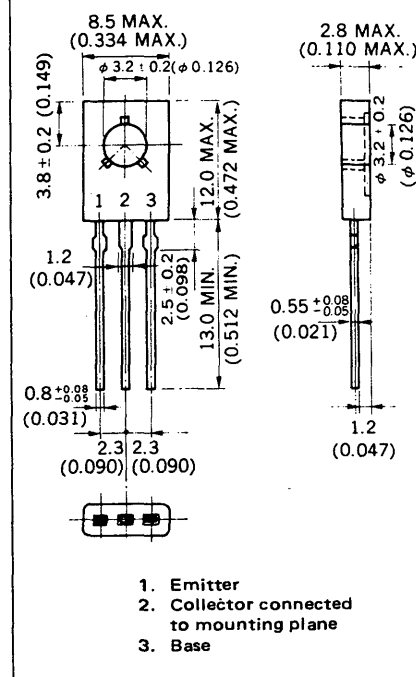
Classification of h_{FE2}

Rank	M	L	K
Range	100 to 200	160 to 320	200 to 400

Test Conditions: $V_{CE} = 2.0 \text{ V}$, $I_C = 0.6 \text{ A}$

PACKAGE DIMENSIONS

in millimeters (inches)



TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

