

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO} Collector cut-off current ($I_E = 0$)	BDS10 $V_{CB} = 60V$			500	μA
	BDS11 $V_{CB} = 80V$			500	
	BDS12 $V_{CB} = 100V$			500	
I_{CEO} Collector cut-off current ($I_B = 0$)	BDS10 $V_{CE} = 30V$			1.0	mA
	BDS11 $V_{CE} = 40V$			1.0	
	BDS12 $V_{CE} = 50V$			1.0	
I_{EBO} Emitter cut-off current ($I_C = 0$)	$V_{EB} = 5V$			1.0	mA
$V_{CEO(sus)^{*}}$ Collector - Emitter sustaining voltage ($I_B = 0$)	BDS10	60			V
	BDS11 $I_C = 100mA$	80			
	BDS12	100			
$V_{CE(sat)^{*}}$ Collector - Emitter saturation voltage	$I_C = 5A$ $I_B = 0.5A$			1.0	V
	$I_C = 10A$ $I_B = 2.5A$			3	
$V_{BE(sat)^{*}}$ Base - Emitter saturation voltage	$I_C = 10A$ $I_B = 2.5A$			2.5	V
V_{BE}^{*} Base - Emitter voltage	$I_C = 5A$ $V_{CE} = 4V$			1.5	V
h_{FE}^{*} DC Current Gain	$I_C = 0.5A$ $V_{CE} = 4V$	40		250	
	$I_C = 5A$ $V_{CE} = 4V$	15		150	
	$I_C = 10A$ $V_{CE} = 4V$	5			
f_T Transition frequency	$I_C = 0.5A$ $V_{CE} = 4V$ $f = 1MHz$	3			MHz

*Pulsed : Pulse duration = 300 μs , duty cycle = 1.5%

SWITCHING CHARACTERISTICS

Parameter	Test Conditions	Max.	Unit
t_{on} On Time ($t_d + t_r$)	$I_C = 4A$ $V_{CC} = 30V$ $I_{B1} = 0.4A$	0.7	μs
t_s Storage Time	$I_C = 4A$ $V_{CC} = 30V$ $I_{B1} = -I_{B2} = 0.4A$	1.0	μs
t_r Fall Time		0.8	μs

THERMAL CHARACTERISTICS

Test Conditions	Max.	Unit
$R_{\theta J-C}$ Thermal Resistance Junction to Case	4.0	$^{\circ}C/W$

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