

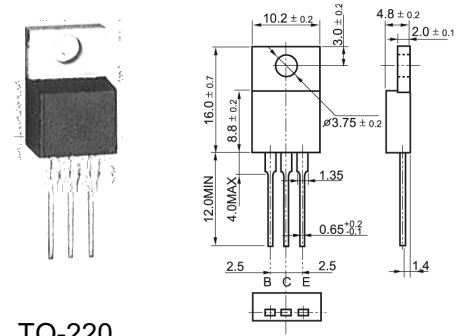


# BUT12A

# SILICON DIFFUSED POWER TRANSISTOR

## GENERAL DESCRIPTION

High voltage, high-speed switching npn transistors in a metal envelope, primarily for use in switching power circuits.



## QUICK REFERENCE DATA

TO-220

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CESM}$	Collector-emitter voltage peak value	$V_{BE} = 0V$		1000	V
$V_{CEO}$	Collector-emitter voltage (open base)			450	V
$I_C$	Collector current (DC)			8	A
$I_{CM}$	Collector current peak value			20	A
$P_{tot}$	Total power dissipation	$T_{mb} \leq 25^\circ C$		100	W
$V_{CEsat}$	Collector-emitter saturation voltage	$I_C = 6.0A; I_B = 1.2A$		1.5	V
$I_{csat}$	Collector saturation current	$f = 16KHz$			A
$V_F$	Diode forward voltage				V
$t_f$	Fall time	$I_C = 6A, I_{B1} = -I_{B2} = 1.2A, V_{CC} = 150V$		1.0	$\mu s$

## LIMITING VALUES

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CESM}$	Collector-emitter voltage peak value	$V_{BE} = 0V$		1000	V
$V_{CEO}$	Collector-emitter voltage (open base)			450	V
$V_{EBO}$	Emitter-base voltage (open collector)			5	V
$I_C$	Collector current (DC)			8	A
$I_B$	Base current (DC)			4	A
$I_{BM}$	Base current peak value			8	A
$P_{tot}$	Total power dissipation	$T_{mb} \leq 25^\circ C$		100	W
$T_{sta}$	Storage temperature		-55	150	$^\circ C$
$T_j$	Junction temperature			150	$^\circ C$

## ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$I_{CE}$	Collector-emitter cut-off current	$V_{BE} = 0V; V_{CE} = V_{CESMmax}$		1.0	mA
$I_{CES}$		$V_{BE} = 0V; V_{CE} = V_{CESMmax}$		2.0	mA
$V_{CEO sust}$	Collector-emitter sustaining voltage	$T_j = 125^\circ C$ $I_B = 0A; I_C = 100mA$ $L = 25mH$			V
$V_{CEsat}$	Collector-emitter saturation voltages	$I_C = 6.0A; I_B = 1.2A$		1.5	V
$V_{BEsat}$	Base-emitter saturation voltage	$I_C = 6.0A; I_B = 1.2A$		1.5	V
$h_{FE}$	DC current gain	$I_C = 1.0A; V_{CE} = 5V$	10	50	
$V_F$	Diode forward voltage				V
$f_T$	Transition frequency at $f = 1MHz$	$I_C = 0.1A; V_{CE} = 10V$	5		MHz
$C_c$	Collector capacitance at $f = 1MHz$	$V_{CB} = 10V$			pF
$t_s$	Switching times (16KHz line deflecton circuit)	$I_C = 6A, I_{B1} = -I_{B2} = 1.2A, V_{CC} = 150V$		5.0	$\mu s$
$t_f$	Turn-off storage time Turn-off fall time	$I_C = 6A, I_{B1} = -I_{B2} = 1.2A, V_{CC} = 150V$		1.0	$\mu s$