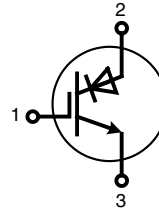
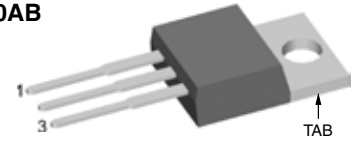


IGBT with Reverse Blocking capability

$$\begin{aligned} V_{CES} &= \pm 1200 \text{ V} \\ I_{C25} &= 25 \text{ A} \\ V_{CE(sat) \text{ typ.}} &= 2.5 \text{ V} \end{aligned}$$


TO-220AB


1 = Gate; 2, TAB = Collector; 3 = Emitter

IGBT			
Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	± 1200	V
V_{GES}	Continuous	± 20	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	25	A
I_{C90}	$T_C = 90^{\circ}\text{C}$	15	A
I_{CM}	$V_{GE} = 0/15 \text{ V}; R_G = 47 \Omega; T_{VJ} = 125^{\circ}\text{C}$	30	A
V_{CEK}	RBSOA; Clamped inductive load; $L = 100 \mu\text{H}$	600	V
SCSOA	600 V	10	μs
P_{tot}	$T_C = 25^{\circ}\text{C}$	300	W

Features

- IGBT with NPT (non punch through) structure
- reverse blocking capability
 - function of series diode monolithically integrated, no external series diode required
 - soft reverse recovery
- positive temperature coefficient of saturation voltage
- Epoxy of package meets UL 94V-0

Applications

Converters requiring reverse blocking capability:

- current source inverters
- matrix converters
- bi-directional switches
- resonant converters
- induction heating
- auxiliary switches for soft switching in the main current path

Symbol	Conditions	Characteristic Values			
		$(T_{VJ} = 25^{\circ}\text{C, unless otherwise specified})$			
		min.	typ.	max.	
$V_{CE(sat)}$	$I_C = 10 \text{ A}; V_{GE} = 15 \text{ V}$		$T_{VJ} = 25^{\circ}\text{C}$	2.5	2.95
			$T_{VJ} = 125^{\circ}\text{C}$	3.3	
$V_{GE(th)}$	$I_C = 1 \text{ mA}; V_{GE} = V_{CE}$	3		6	V
I_{CES}	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}$		$T_{VJ} = 25^{\circ}\text{C}$		50
			$T_{VJ} = 125^{\circ}\text{C}$	1.0	
I_{GES}	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			500	nA
Q_{Gon}	$V_{CE} = 120 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 10 \text{ A}$		36		nC

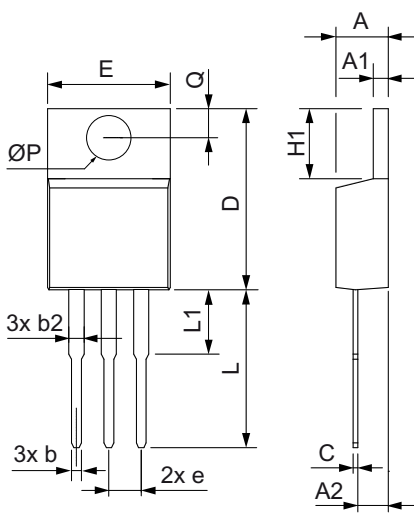
IGBT

Symbol	Conditions	Characteristic Values			
		(T _{VJ} = 25°C, unless otherwise specified)			
		min.	typ.	max.	
External diode DSEP 30-12 - diagramm see Fig. 1					
t _{d(on)}	Inductive load, T _{VJ} = 125°C V _{CE} = 600 V; I _C = 10 A V _{GE} = ±15 V; R _G = 47 Ω		22		ns
t _r			18		ns
t _{d(off)}			210		ns
t _f			32		ns
E _{on}			1.1		mJ
E _{off}			0.13		mJ
Internal diode - diagramm see Fig. 2					
t _{d(on)}	Inductive load, T _{VJ} = 125°C V _{CE} = 600 V; I _C = 10 A V _{GE} = ±15 V; R _G = 47 Ω		17.5		ns
t _r			16		ns
t _{d(off)}			212		ns
t _f			41		ns
E _{on}			3.0		mJ
E _{off}			0.1		mJ
E _{rec int}		0.65		mJ	
I _{RM}	I _F = 10 A; di _C /dt = -800 A/μs; T _{VJ} = 125°C		25		A
t _{rr}	V _{CE} = -600 V; V _{GE} = 15 V		300		ns
R _{thJC}			0.65		K/W

Component

Symbol	Conditions	Maximum Ratings	
T _{VJ}	operating	-55...+150	°C
T _{stg}	storage	-55...+125	°C
M _d	mounting torque	0.4 - 0.6	Nm
F _C	mounting force with clip	20...60	N

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
R _{thCH}	with heatsink compound		0.25		K/W
Weight			2		g



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	2.54	BSC	0.100	BSC
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
ØP	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125

Fig. 1 turn-on/turn-off with external diode (DSEP 30-12)

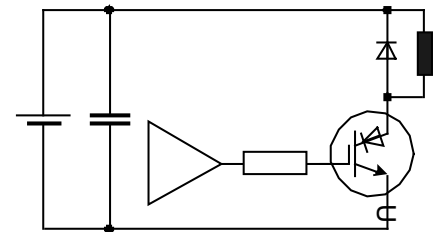


Fig. 2 turn-on/-off with internal diode

