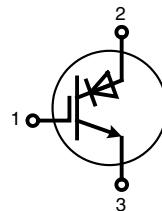
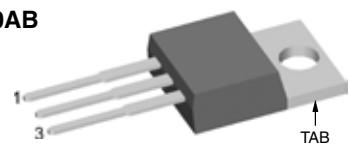


IGBT with Reverse Blocking capability

V_{CES} = ±1200 V
I_{C25} = 25 A
V_{CE(sat)} typ. = 2.5 V



TO-220AB



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

IGBT

Symbol	Conditions	Maximum Ratings		
V_{CES}	T _{VJ} = 25°C to 150°C	± 1200		V
V_{GES}	Continuous	± 20		V
I_{C25}	T _C = 25°C	25		A
I_{C90}	T _C = 90°C	15		A
I_{CM}	V _{GE} = 0/15 V; R _G = 47 Ω; T _{VJ} = 125°C	30		A
V_{CEK}	RBSOA; Clamped inductive load; L = 100 μH	600		V
SCSOA	600 V	10		μs
P_{tot}	T _C = 25°C	300		W

Symbol **Conditions****Characteristic Values**(T_{VJ} = 25°C, unless otherwise specified)

			min.	typ.	max.	
V_{CE(sat)}	I _C = 10 A; V _{GE} = 15 V	T _{VJ} = 25°C		2.5	2.95	V
		T _{VJ} = 125°C		3.3		V
V_{GE(th)}	I _C = 1 mA; V _{GE} = V _{CE}		3		6	V
I_{CES}	V _{CE} = V _{CES} ; V _{GE} = 0 V	T _{VJ} = 25°C		50		μA
		T _{VJ} = 125°C		1.0		mA
I_{GES}	V _{CE} = 0 V; V _{GE} = ± 20 V			500		nA
Q_{Gon}	V _{CE} = 120 V; V _{GE} = 15 V; I _C = 10 A		36			nC

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

IGBT

Symbol	Conditions	Characteristic Values		
	($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.	max.
External diode DSEP 30-12 - diagramm see Fig. 1				
$t_{d(on)}$		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				
$t_{d(on)}$		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}	$I_F = 10 \text{ A}; dI_C/dt = -800 \text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$	25		A
t_{rr}	$V_{CE} = -600 \text{ V}; V_{GE} = 15 \text{ V}$	300		ns
R_{thJC}		0.65		K/W

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

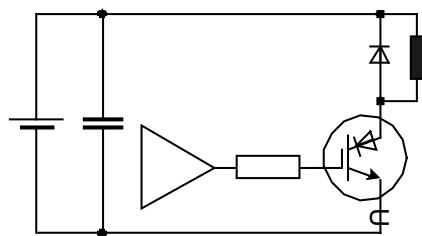
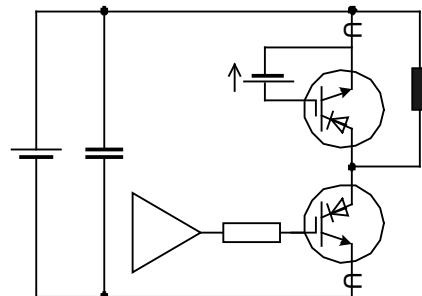
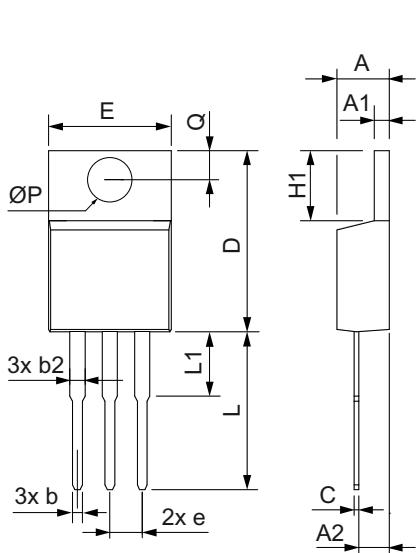


Fig. 2 turn-on/-off with internal diode



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
$\emptyset P$	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125

IXYS reserves the right to change limits, test conditions and dimensions.

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