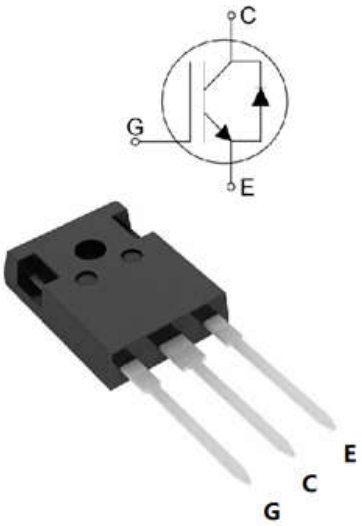
YGW40N120T1B

FEATURES

- High breakdown voltage to 1200V for improved reliability
- Trench-Stop Technology offering :
  - very tight parameter distribution
  - high ruggedness, temperature stable behavior
  - Short circuit withstand time – 10μs
  - High ruggedness, temperature stable
  - Low $V_{CE(SAT)}$
  - Easy parallel switching capability due to positive temperature coefficient in $V_{CE(SAT)}$
- Enhanced avalanche capability

V_{CE}	1200	V
I_C	40	A
$V_{CE(SAT)}$ I_C=40A	1.7	V



APPLICATION

- Frequency Converters
- Motor Drive

Product	Package	Packaging
YGW40N120T1B	TO247	Tube

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Breakdown Voltage	V_{CE}	1200	V
DC collector current, limited by T_{jmax} T_C = 25°C T_C = 100°C	I_C	80 40	A
Diode Forward current, limited by T_{jmax} T_C = 25°C T_C = 100°C	I_F	80 40	A
Continuous Gate-emitter voltage	V_{GE}	±20	V
Transient Gate-emitter voltage	V_{GE}	±30	V
Turn off safe operating area V_{CE} ≤1200V, T_j ≤ 150°C	-	160	A
Pulsed Collector Current, V_{GE} =15V, t_p limited by T_{jmax}	I_{CM}	160	A
Diode Pulsed Current, t_p limited by T_{jmax}	I_{Fpuls}	160	A
Short Circuit Withstand Time, V_{GE}= 15V, V_{CE}≤ 600V	T_{sc}	10	μs
Power dissipation , T_j=25°C	P_{tot}	416	W
Operating junction temperature	T_j	-40...+150	°C
Storage temperature	T_s	-55...+150	°C
Soldering temperature, wave soldering 1.6mm (0.063in.) from case for 10s	-	260	°C

Thermal Resistance

Parameter	Symbol	Max. Value	Unit
IGBT thermal resistance, junction - case	R_{θ}(j-c)	0.3	K/W
Diode thermal resistance, junction - case	R_{θ}(j-c)	0.6	K/W
Thermal resistance, junction - ambient	R_{θ}(j-a)	40	K/W

Switching Characteristic, Inductive Load

Parameter


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Fig. 5 Output characteristics

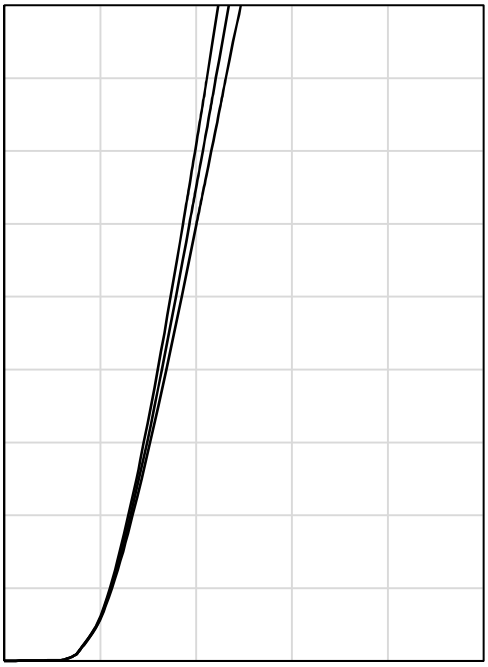


Fig. 6 Saturation voltage characteristics

Fig. 7 Switching times vs. gate resistor

Fig. 8 Switching times vs. collector current

Fig. 9 Switching loss vs. gate resistor

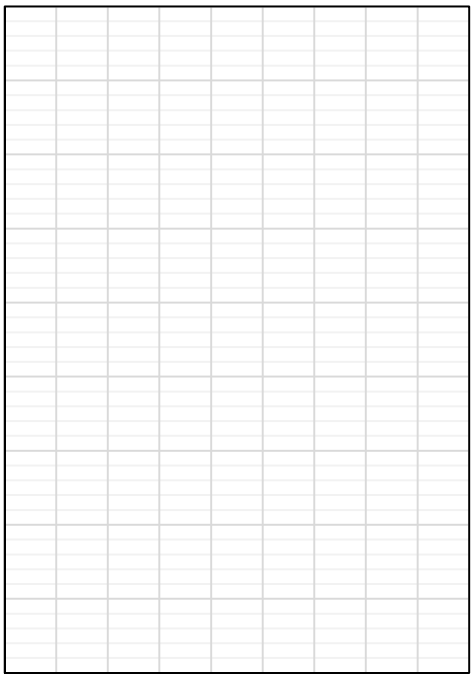
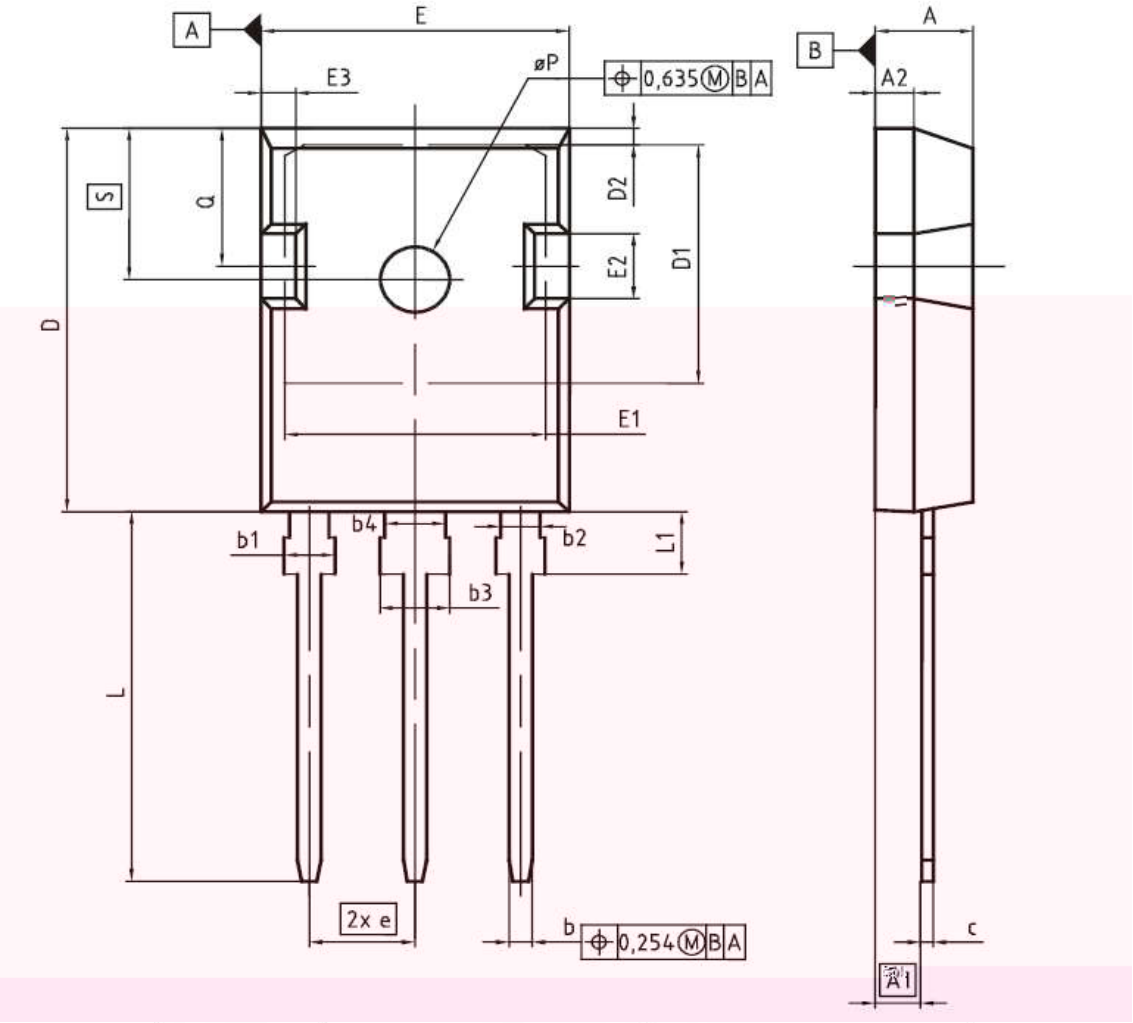


Fig. 10 Switching loss vs. collector current

Fig. 11 Gate charge characteristics

Fig. 12 Capacitance characteristics

PG-TO247-3



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.83	5.21	0.190	0.205
A1	2.27	2.54	0.089	0.100
A2	1.85	2.16	0.073	0.085
b	1.07	1.33	0.042	0.052
b1	1.90	2.41	0.075	0.095
b2	1.90	2.16	0.075	0.085
b3	2.87	3.38	0.113	0.133
b4	2.87	3.13	0.113	0.123
c	0.55	0.68	0.022	0.027
D	20.80	21.10	0.819	0.831
D1	16.25	17.65	0.640	0.695
D2	0.95	1.35	0.037	0.053
E	15.75	16.13	0.618	0.635
E1	13.10	14.15	0.516	0.557
E2	3.68	5.10	0.145	0.201
E3	1.00	2.60	0.039	0.102
e	5.44 (BSC)		0.214 (BSC)	
N	3		3	
L	19.80	20.32	0.780	0.800
L1	4.10	4.47	0.161	0.176
øP	3.50	3.70	0.138	0.146
Q	5.49	6.00	0.216	0.236
S	6.04	6.30	0.238	0.248