



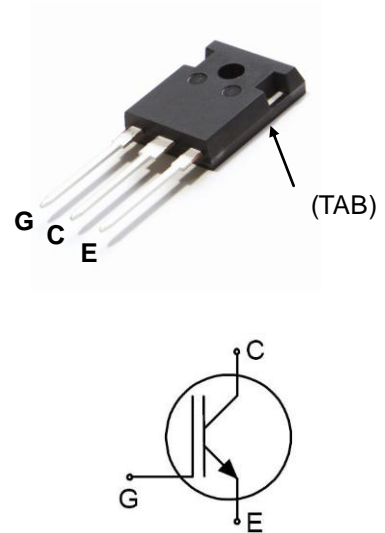
# Name: AnR50IGB12

### Applications

- AC Inverter drives
- UPS
- Welding Power Supplies

### Features

- Native Components
- Structure NPT
- Low  $V_{CE(sat)}$
- High short circuit capability
- Easy paralleling
- Positive temperature coefficient of  $V_{CE(sat)}$
- Low  $C_{ies}$ ,  $C_{oes}$ ,  $C_{res}$
- 100% control of the effect of double current
- Insulated base plate for heat dissipation
- Self-restraint on the short-circuit currents



G	C	E	TAB
Gate	Collector	Emitter	Collector

### Product Summary

Part Number	$V_{CE}$	$V_{CE(sat)}$	$I_c$	Packaging
AnR50IGB12	1200 V	2.5 V	50 A	Tube

Table 1. Absolute Maximum Ratings

	Parameter	Value	Units
$V_{CES}$	Collector-to-Emitter Voltage	1200	V
$V_{GES}$	Gate-to-Emitter Voltage	$\pm 20$	V
$I_c, T_C=25\text{ }^\circ\text{C}$	Collector Current	70	A
$I_{CM}, T_C=25\text{ }^\circ\text{C}$	Pulsed Collector Current	140	
$I_c, T_C=90\text{ }^\circ\text{C}$	Collector Current	50	
$I_{CM}, T_C=90\text{ }^\circ\text{C}$	Pulsed Collector Current	100	
$P_{tot}$	Power dissipation $T_C=25\text{ }^\circ\text{C}$	145	W
$T_j$	Operating Temperature	-55 to +150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55 to +125	
$t_{sc}$	Short circuit withstand time $V_{GE}=15\text{ V}, V_{CC}\leq 1200\text{ V}, T_j=150\text{ }^\circ\text{C}$	10	$\mu\text{s}$



	Weight	6 (Typical)	g
--	--------	-------------	---

**Table 2. Thermal resistance**

Symbol	Parameter	Min	Max	Units	Test Conditions
R <sub>thJC</sub>	Junction-to-Case	–	0.4	°C/W	
R <sub>thJA</sub>	Junction-to-Ambient	–	40		

**Table 3. Electrical Characteristics @ T<sub>J</sub>=25°C**

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
V <sub>CE(sat)</sub>	Collector-to-Emitter Saturation Voltage	–	2.4	2.5	V	V <sub>GE</sub> =15 V, I <sub>C</sub> =50 A
		–	2.7	3.0		V <sub>GE</sub> =15 V, I <sub>C</sub> =50 A, T <sub>J</sub> =125 °C
V <sub>GE(th)</sub>	Gate Threshold Voltage	3.0	4.5	6.0	V	V <sub>CE</sub> =V <sub>GE</sub> , I <sub>C</sub> =1 mA
I <sub>CES</sub>	Zero Gate Voltage Collector Current	–	0.01	0.1	mA	V <sub>CE</sub> =1200 V, V <sub>GE</sub> =0 V
		–	0.5	2.0		V <sub>CE</sub> =1200 V, V <sub>GE</sub> =0 V, T <sub>J</sub> =125 °C
I <sub>GES(F)</sub>	Gate-to-Emitter Leakage Forward	–	10	100	nA	V <sub>GE</sub> =20 V
		–	20	150		V <sub>GE</sub> =20 V, T <sub>J</sub> =125 °C
I <sub>GES(R)</sub>	Gate-to-Emitter Leakage Reverse	–100	–10	–	nA	V <sub>GE</sub> =–20 V
		–150	–20	–		V <sub>GE</sub> =–20 V, T <sub>J</sub> =125 °C
C <sub>ies</sub>	Input Capacitance	–	tbd	–	pF	V <sub>GE</sub> =0 V, V <sub>CE</sub> =25 V, f=1 MHz
C <sub>oes</sub>	Output Capacitance	–	tbd	–		
C <sub>res</sub>	Reverse Transfer Capacitance	–	tbd	–		
t <sub>d(On)</sub>	Turn-On Delay Time	–	tbd	–	ns	V <sub>CC</sub> =600 V, I <sub>C</sub> =50 A, V <sub>GE</sub> =±15 V, R <sub>G</sub> =10 Ω, T <sub>J</sub> =25 °C, Inductive Load
t <sub>r</sub>	Rise Time	–	tbd	–		
t <sub>d(Off)</sub>	Turn-Off Delay Time	–	tbd	–		
t <sub>f</sub>	Fall Time	–	tbd	–		
E <sub>on</sub>	Turn-On Energy	–	tbd	–	mJ	V <sub>CC</sub> =600 V, I <sub>C</sub> =50 A, V <sub>GE</sub> =±15 V, R <sub>G</sub> =10 Ω, T <sub>J</sub> =25 °C, Inductive Load
E <sub>off</sub>	Turn-Off Energy	–	tbd	–		

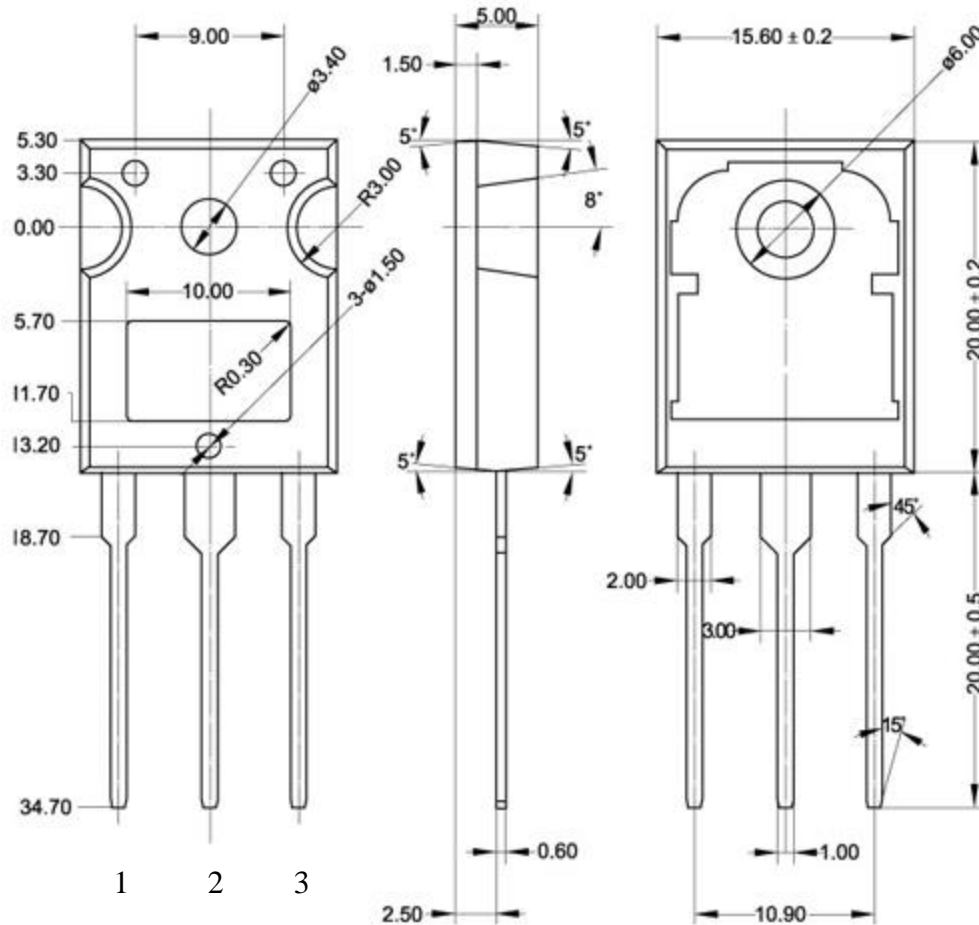
**Precious metal content into 1000 pieces:**

Gold \_\_\_\_\_ g;

Silver \_\_\_\_\_ g.



**Case Outline and Dimensions - TO-247**



**NOTE:**

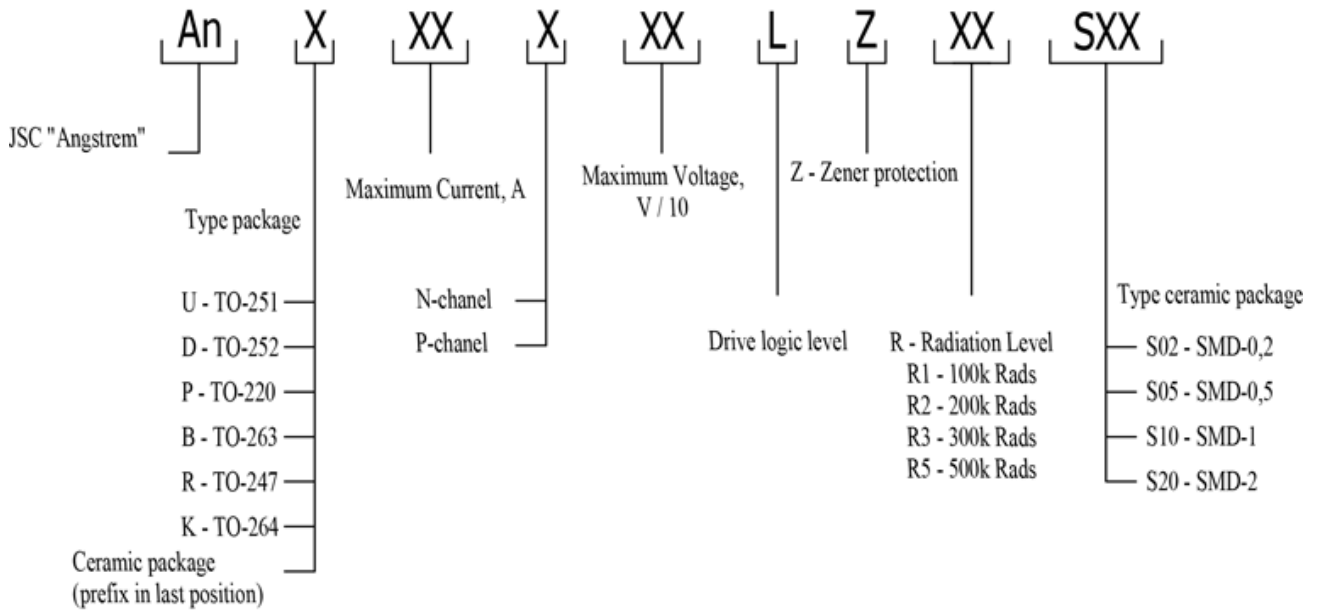
1 Dimensions are shown in millimeters.

**PAD ASSIGNMENTS**

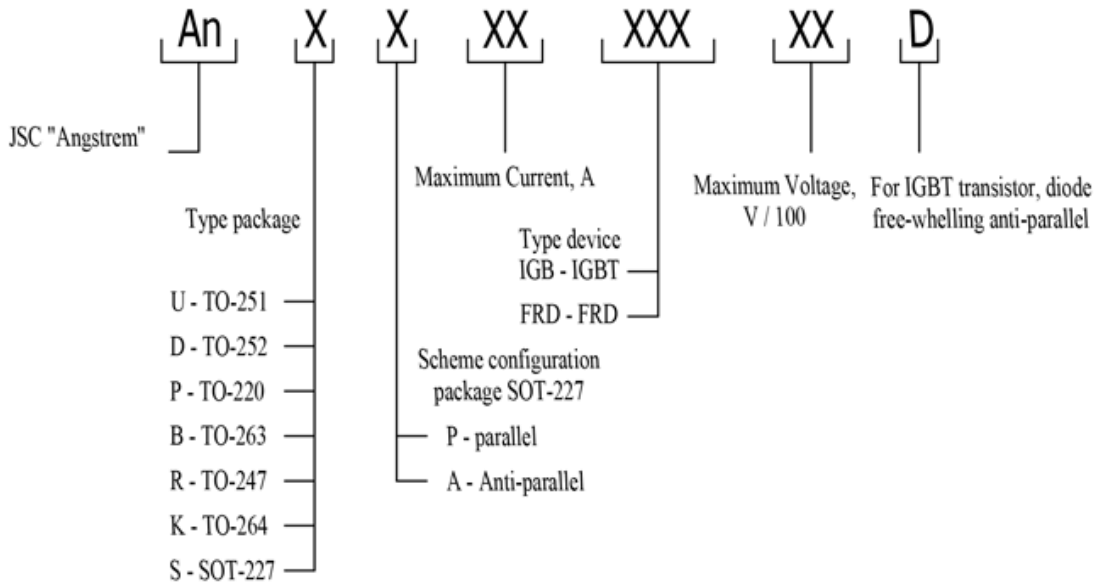
- 1 = GATE
- 2 = COLLECTOR
- 3 = EMITTER



Description name MOSFET



Description name IGBT & FRD



- Sample:
- AnB7N60 - MOSFET N-channel, 7A, 600V, package TO-263
  - An10N70R1S10 - MOSFET N-channel, 10A, 700V, Radiation level 100k Rads, package SMD-1
  - AnR75IGB12 - IGBT, 75A, 1200V, package TO-247
  - An50FRD17 - FRD, 50A, 1700V, chip
  - AnSP100FRD04 - FRD, 200A, 400V package SOT-227 configuration two diode parallel