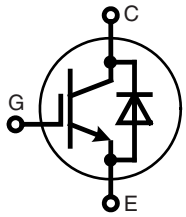
High Voltage IGBT with optional Diode ISOPLUS™ package

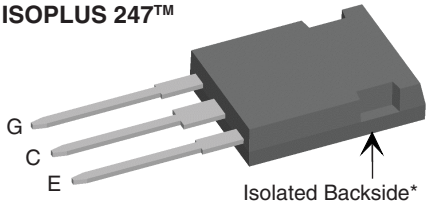
(Electrically Isolated Back Side)

V_{CES} = 1200 V
I_{C25} = 50 A
$V_{CE(sat)\ typ}$ = 2.4 V

Short Circuit SOA Capability
Square RBSOA



ISOPLUS 247™



E72873

G = Gate C = Collector E = Emitter

Symbol	Conditions		Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C		1200	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 20 kΩ		1200	V
V_{GES}	Continuous		±20	V
V_{GEM}	Transient		±30	V
I_{C25}	T_C = 25°C		50	A
I_{C90}	T_C = 90°C		30	A
I_{CM}	T_C = 90°C, t_p = 1 ms		60	A
RBSOA	V_{GE} = ±15 V, T_J = 125°C, R_G = 47 Ω		I_{CM} = 50	A
	Clamped inductive load, L = 30 mH		$V_{CEK} < V_{CES}$	
t_{SC} (SCSOA)	V_{GE} = ±15 V, V_{CE} = V_{CES}, T_J = 125°C R_G = 47 Ω, non repetitive		10	µs
P_C	T_C = 25°C	IGBT	200	W
		Diode	95	W
T_J			-55 ... +150	°C
T_{stg}			-55 ... +150	°C
V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq$ 1 mA		2500	V~
Weight			6	g

Symbol	Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
$V_{(BR)CES}$	V_{GE} = 0 V	1200			V
$V_{GE(th)}$	I_C = 1 mA, V_{CE} = V_{GE}	4.5		6.5	V
I_{CES}	V_{CE} = V_{CES}, T_J = 25°C			1.5	mA
	T_J = 125°C		2.5		mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V			± 500	nA
$V_{CE(sat)}$	I_C = 30 A, V_{GE} = 15 V		2.4	2.9	V

Features

- NPT IGBT technology
  - high switching speed
  - low switching losses
  - square RBSOA, no latch up
  - high short circuit capability
  - positive temperature coefficient for easy paralleling
  - MOS input, voltage controlled
  - fast recovery epitaxial diode
- Epoxy meets UL 94V-0
- Isolated and UL registered E153432

Advantages

- DCB Isolated mounting tab meets TO-247AD package outline
- Package for clip or spring mounting
- Space savings
- High power density

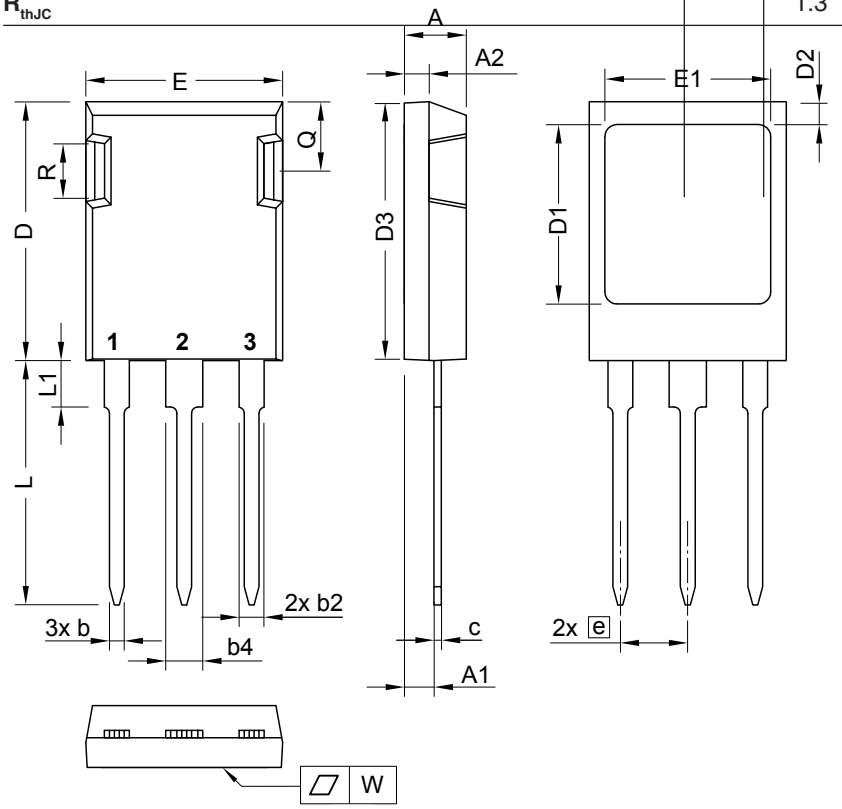
Typical Applications

- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninteruptible power supplies (UPS)
- Switch-mode and resonant-mode power supplies

Symbol	Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		1650		pF
C_{oes}			250		pF
C_{res}			110		pF
Q_g	I_C = 30 A, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}		120		nC
$t_{d(on)}$			100		ns
t_r			70		ns
$t_{d(off)}$	**Inductive load, T_J = 125°C**		500		ns
t_f	I_C = 30 A, V_{GE} = ±15 V,		70		ns
E_{on}	V_{CE} = 600 V, R_G = 47 Ω		4.6		mJ
E_{off}			3.4		mJ
R_{thJC}				0.6	K/W
R_{thCH}	Package with heatsink compound		0.25		K/W

Reverse Diode (FRED)

Symbol	Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_F	I_F = 30 A, V_{GE} = 0 V		2.5	2.75	V
	I_F = 30 A, V_{GE} = 0 V, T_J = 125°C		2.0		V
I_F	T_C = 25°C			50	A
	T_C = 90°C			27	A
I_{RM}	I_F = 30 A, -di_F/dt = 400 A/µs, V_R = 600 V		20		A
t_{rr}	V_{GE} = 0 V, T_J = 125°C		200		ns
t_{rr}	I_F = 1 A, -di_F/dt = 100 A/µs, V_R = 30 V, V_{GE} = 0 V		40		ns
R_{thJC}				1.3	K/W



Dim.	Millimeter min	Millimeter max	Inches min	Inches max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b2	1.91	2.20	0.075	0.087
b4	2.92	3.24	0.115	0.128
c	0.61	0.83	0.024	0.033
D	20.80	21.34	0.819	0.840
D1	15.75	16.26	0.620	0.640
D2	1.65	2.15	0.065	0.085
D3	20.30	20.70	0.799	0.815
E	15.75	16.13	0.620	0.635
E1	13.21	13.72	0.520	0.540
e	5.45 BSC		0.215 BSC	
L	19.81	20.60	0.780	0.811
L1	3.81	4.38	0.150	0.172
Q	5.59	6.20	0.220	0.244
R	4.25	5.50	0.167	0.217
W	-	0.10	-	0.004

Die konvexe Form des Substrates ist typ. < 0.04 mm über der Kunststoffoberfläche der Bauteilunterseite
The convex bow of substrate is typ. < 0.04 mm over plastic surface level of device bottom side

Die Gehäuseabmessungen entsprechen dem Typ TO-247 AD gemäß JEDEC außer Schraubloch und $L_{max.}$
This drawing will meet all dimensions requiarement of JEDEC outline TO-247 AD except screw hole and except $L_{max.}$

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

20190130a

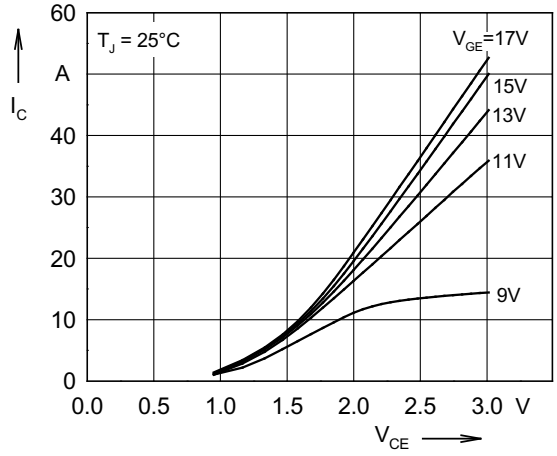


Fig. 1 Typ. output characteristics

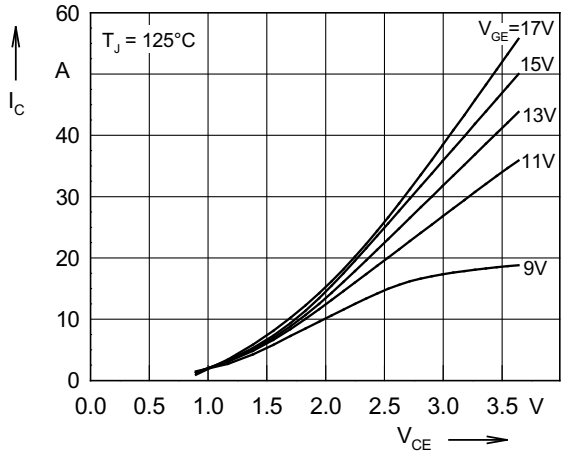


Fig. 2 Typ. output characteristics

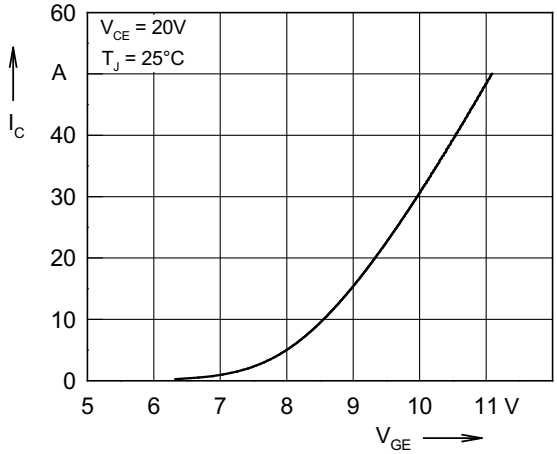


Fig. 3 Typ. transfer characteristics

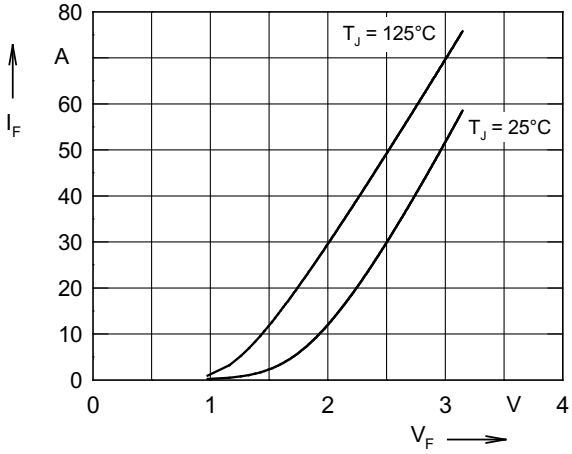


Fig. 4 Typ. forward characteristics of free wheeling diode

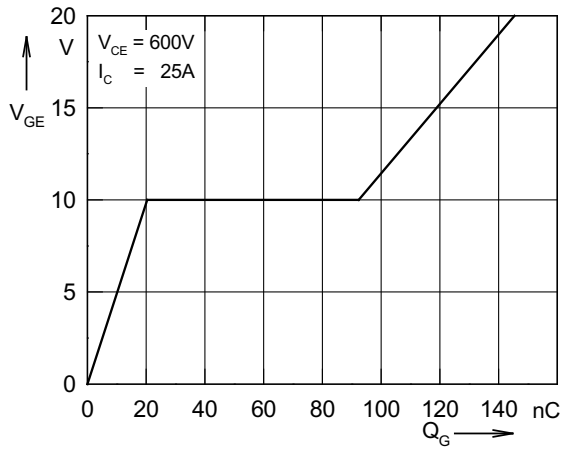


Fig. 5 Typ. turn on gate charge

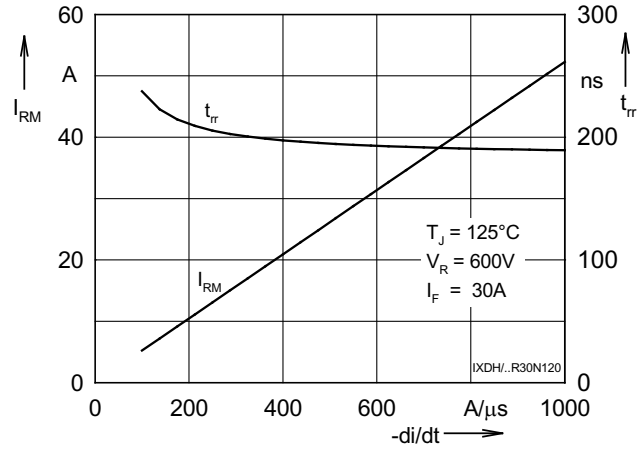


Fig. 6 Typ. turn off characteristics of free wheeling diode