

1200V XPT™ IGBT GenX3™

IXYK120N120B3 IXYX120N120B3

High-Speed IGBT for 10-30 kHz Switching

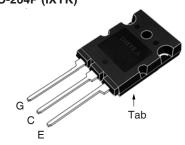


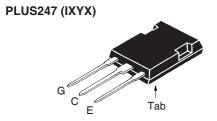
Symbol	Test Conditions	Maximum R	atings
V _{CES}	T _{.1} = 25°C to 175°C	1200	V
V _{CGR}	$T_J^\circ = 25^\circ \text{C to } 175^\circ \text{C}, R_{\text{GE}} = 1 \text{M}\Omega$	1200	V
V _{GES}	Continuous	±20	V
V _{GEM}	Transient	±30	V
I _{C25}	T _c = 25°C (Chip Capability)	320	A
LRMS	Terminal Current Limit	160	Α
I _{C110}	$T_{c} = 110^{\circ}C$	120	Α
СМ	$T_{c} = 25^{\circ}C$, 1ms	800	A
I _A	$T_{c} = 25^{\circ}C$	60	Α
E _{AS}	$T_{c} = 25^{\circ}C$	2	J
SSOA	$V_{GE} = 15V, T_{VJ} = 150^{\circ}C, R_{G} = 1\Omega$	I _{CM} = 240	A
(RBSOA)	Clamped Inductive Load	$V_{CE} \leq V_{CES}$	
P _c	T _C = 25°C	1500	W
T _J		-55 +175	°C
T _{JM}		175	°C
T _{stg}		-55 + 175	°C
T _L	Maximum Lead Temperature for Soldering	300	°C
T _{SOLD}	1.6 mm (0.062in.) from Case for 10s	260	°C
M _d	Mounting Torque (TO-264)	1.13/10	Nm/lb.in
F _c	Mounting Force (PLUS247)	20120 /4.527	N/lb
Weight	TO-264P	10	g
	PLUS247	6	g

Symbol Test Conditions		Chara	acteristic Values			
$(T_J = 25^{\circ}C,$	Unless Otherwise Specified)	Min.	Тур.	Max.		
BV _{CES}	$I_{C} = 250 \mu A, V_{GE} = 0 V$	1200			V	
V _{GE(th)}	$I_{\rm C} = 1 \text{mA}, V_{\rm CE} = V_{\rm GE}$	3.0		5.0	V	
I _{CES}	$V_{CE} = V_{CES}, V_{GE} = 0V$			25	μΑ	
	$T_J = 1$	50°C		1.5	mΑ	
GES	$V_{CE} = 0V, V_{GE} = \pm 20V$			±200	nA	
V _{CE(sat)}	$I_{c} = 100A, V_{GF} = 15V, Note 1$		1.8	2.2	V	
02(001)	$T_{J} = 1$	50°C	2.4		V	

1200V 120A C110 ≤ 2.2V V_{CE(sat)} 260ns **t**_{fi(typ)}

TO-264P (IXYK)





G = Gate= Emitter Ε C = Collector Tab = Collector

Features

- Square RBSOA
- International Standard Packages
- Positive Thermal Coefficient of Vce(sat)
- Avalanche Rated
- High Current Handling Capability

Advantages

- High Power Density
- Low Gate Drive Requirement

Applications

- High Frequency Power Inverters
- UPS
- Motor Drives
- SMPS
- PFC Circuits
- Battery Chargers
- Welding Machines
- Lamp Ballasts

TO-264P Outline



•	Test Conditions	Characteristic Values		
$(1_{J} = 25^{\circ})$	C Unless Otherwise Specified)	Min.	Тур.	Max.
\mathbf{g}_{fs}	$I_{\rm C}$ = 60A, $V_{\rm CE}$ = 10V, Note 1	40	70	S
C _{ies})		9800	pF
C _{oes}	$V_{CE} = 25V, V_{GE} = 0V, f = 1MHz$		567	pF
C _{res})		215	pF
$\mathbf{Q}_{q(on)}$)		400	nC
Q _{ge}	$I_{\rm C} = I_{\rm C110}, V_{\rm GE} = 15 \text{V}, V_{\rm CE} = 0.5 \bullet \text{V}_{\rm CES}$		70	nC
Q _{gc})		190	nC
t _{d(on)})		30	ns
t _{ri}	Inductive load, T _J = 25°C		54	ns
E_{on}	$I_{c} = 100A, V_{GF} = 15V$		9.7	mJ
t _{d(off)}	$V_{CF} = 0.8 \cdot V_{CFS}$, $R_{G} = 1\Omega$		340	ns
t _{fi}	Note 2		260	ns
E_{off}) 11010 2		21.5	mJ
t _{d(on)})		29	ns
t _{ri}	Inductive load, T _J = 150°C		55	ns
E _{on}	$I_{\rm C} = 100 {\rm A}, V_{\rm GE} = 15 {\rm V}$		14.7	mJ
$\mathbf{t}_{d(off)}$	$V_{CE} = 0.8 \cdot V_{CES}, R_{G} = 1\Omega$		420	ns
t _{fi}	Note 2		406	ns
E_{off}	J		27.9	mJ
R _{thJC}				0.10 °C/W
R _{thCS}			0.15	°C/W

10-264P Outline				
x2 e			1 = Gat	
			2,4 = Col 3 = Em	
SYM	INC MIN	HES MAX	MILLIM MIN	ETERS MAX
Α	.185	.209	4.70	5.30
A1	.102	.118	2.60	3.00
Ь	.035	.049	0.90	1.25
Ь1	.091	.106	2.30	2.70
b2	.110	.126	2.80	3.20
С	.020	.033	0.50	0.85
D	1.012	1.035	25.70	26.30
D1	.783	.799	19.90	20.30
D2	.185	.205	4.70	5.20
<u> </u>	.776	.799	19.70	20.30
E1	.661	.677	16.80	17.20
е	.215	BSC	5.46	BSC
L	.768	.807	19.50	20.50
L1	.091	.106	2.30	2.70
Q	.228	.244	5.80	6.20
Q 1	.346	.362	8.80	9.20
ØR	.150	.165	3.80	4.20
ØR1	.071	.087	1.80	2.20
DI LICO/ITM Outling				

Notes:

- 1. Pulse test, $t \le 300\mu s$, duty cycle, $d \le 2\%$.
- 2. Switching times & energy losses may increase for higher $V_{CE}(clamp)$, T_J or R_G .

ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

PLUS247™	Outline
A I I A2 I I R I I I I I I I I I I I I I I I I	D1 D1 D2 PLCS 2 PLCS
	Gate - Collector Emitter

o Emitor				
SYM	INCHES		MILLIMETERS	
SIM	MIN	MAX	MIN	MAX
Α	.190	.205	4.83	5.21
A1	.090	.100	2,29	2,54
A2	.075	.085	1.91	2.16
Ь	.045	.055	1.14	1.40
b2	.075	.087	1.91	2.20
b4	.115	.126	2.92	3.20
С	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
D1	.650	.690	16.51	17.53
D2	.035	.050	0.89	1.27
Ε	.620	.635	15.75	16.13
E1	.520	.560	13.08	14.22
е	.215 BSC		5.45	BSC
L	.780	.810	19.81	20.57
L1	.150	.170	3.81	4.32
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83

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