

PolarP[™] Power MOSFET

IXTK170P10P IXTX170P10P

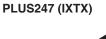
 $V_{DSS} = -100V$ $I_{D25} = -170A$ $R_{DS(op)} \le 14m\Omega$

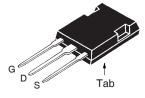
P-Channel Enhancement Mode Avalanche Rated



TO-264 (IXTK)	
G D S	Tab

Symbol	Test Conditions	Maximum F	Ratings
V _{DSS}	T _J = 25°C to 150°C	-100	V
V _{DGR}	$T_J = 25^{\circ}C$ to 150°C, $R_{GS} = 1M\Omega$	-100	V
V _{GSS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C (Chip Capability)	-170	A
I _{LRMS}	Lead Current Limit, RMS T _C = 25°C, Pulse Width Limited by	-160 T _{JM} - 510	A A
I _A	T _C = 25°C	-170	Α
E _{AS}	$T_{c} = 25^{\circ}C$	3.5	J
dv/dt	$I_{S} \le I_{DM}, V_{DD} \le V_{DSS}, T_{J} \le 150^{\circ}C$	10	V/ns
P_{D}	T _C = 25°C	890	W
T _J T _{JM} T _{stg}		-55 +150 150 -55 +150	0° 0° 0°
T _L	Maximum Lead Temperature for So 1.6 mm (0.062in.) from Case for 10s	· ·	°C °C
M _d	Mounting Force (PLUS247) Mounting Forque (TO-264)	20120 / 4.527 1.13 / 10	N/lb. Nm/lb.in.
Weight	PLUS247 TO-264	6 10	g g





G = Gate D = DrainS = Source Tab = Drain

Features

- International Standard Packages
- Rugged PolarP™ Process
- High Current Handling Capability
- Fast Intrinsic Diode
- Avalanche Rated
- Low Package Inductance

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High-Side Switches
- Push Pull Amplifiers
- DC Choppers
- Automatic Test Equipment
- Current Regulators

Symbol Test Conditions $(T_J = 25^{\circ}C, Unless Otherwise Specified)$		Chara Min.	Characteristic Values Min. Typ. Max.		
BV _{DSS}	$V_{GS} = 0V$, $I_D = -250\mu A$	-100		V	
V _{GS(th)}	$V_{DS} = V_{GS}$, $I_{D} = -1mA$	- 2.0		- 4.0 V	
I _{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			±100 nA	
I _{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0V$ $T_{J} = 1$	25°C		- 50 μA - 250 μA	
R _{DS(on)}	$V_{GS} = -10V, I_{D} = 0.5 \bullet I_{D25}, \text{ Note 1}$			14 mΩ	

4 - Drain



Symbo (T _J = 25		Test Conditions Inless Otherwise Specified)	Chara Min.	cteristic Typ.	Values Max.
g _{fs}		$V_{DS} = -10V, I_{D} = 0.5 \cdot I_{D25}, \text{ Note 1}$	35	58	S
C _{iss})			12.6	nF
\mathbf{C}_{oss}	}	$V_{GS} = 0V, V_{DS} = -25V, f = 1MHz$		4190	pF
\mathbf{C}_{rss}	J			930	pF
t _{d(on)})	Resistive Switching Times		32	ns
t _r		$V_{GS} = -10V, V_{DS} = 0.5 \cdot V_{DSS}, I_{D} = 0.5 \cdot I_{D25}$		75	ns
t _{d(off)}	($V_{GS} = 10V$, $V_{DS} = 0.3 V_{DSS}$, $V_{D} = 0.3 V_{D25}$ $V_{DSS} = 10V$ (External)		82	ns
t _f	J	$n_{\rm G} = 152 (\text{External})$		45	ns
$Q_{g(on)}$)			240	nC
Q_{gs}	}	$V_{GS} = -10V$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_{D} = 0.5 \cdot I_{D25}$		45	nC
\mathbf{Q}_{gd}	J			120	nC
R _{thJC}					0.14 °C/W
$\mathbf{R}_{\mathrm{thCS}}$				0.15	°C/W

Source-Drain Diode

		cteristic Typ.	stic Values o. Max.		
I _s	$V_{GS} = 0V$			-170	Α
I _{SM}	Repetitive, Pulse Width Limited by $\mathrm{T}_{_{\mathrm{JM}}}$			- 680	Α
V _{SD}	$I_F = -85A, V_{GS} = 0V, Note 1$			- 3.3	V
t _{rr}	L = - 854 -di/dt = -1004/us		176		ns
Q _{RM}	$I_F = -85A$, $-di/dt = -100A/\mu s$ $V_R = -50V$, $V_{GS} = 0V$		1.25		μC
I _{RM}	v _R 50 v, v _{GS} - 0 v		-14.2		Α

Note 1: Pulse test, $t \le 300\mu s$, duty cycle, $d \le 2\%$.

TO-264 AA Outline To-264 AA Out

Dim.	Millimeter		Inc	Inches	
	Min.	Max.	Min.	Max.	
Α	4.82	5.13	.190	.202	
A1	2.54	2.89	.100	.114	
A2	2.00	2.10	.079	.083	
b	1.12	1.42	.044	.056	
b1	2.39	2.69	.094	.106	
b2	2.90	3.09	.114	.122	
С	0.53	0.83	.021	.033	
D	25.91	26.16	1.020	1.030	
Е	19.81	19.96	.780	.786	
е	5.46 BSC		.215 BSC		
J	0.00	0.25	.000	.010	
K	0.00	0.25	.000	.010	
L	20.32	20.83	.800	.820	
L1	2.29	2.59	.090	.102	
Р	3.17	3.66	.125	.144	
Q	6.07	6.27	.239	.247	
Q1	8.38	8.69	.330	.342	
R	3.81	4.32	.150	.170	

PLUS 247™ Outline

1.78

6.04

2.29

6.30

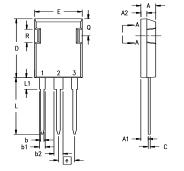
.070

.238

.090

.248

R1

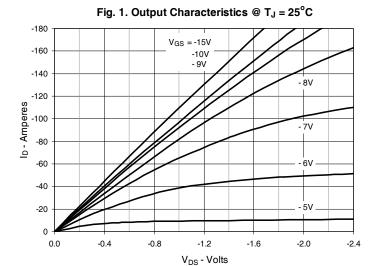


Terminals: 1 - Gate 2 - Drain 3 - Source

im.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
Α	4.83	5.21	.190	.205
A_1	2.29	2.54	.090	.100
A,	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b₁	1.91	2.13	.075	.084
b ₂	2.92	3.12	.115	.123
С	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
е	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	0.244
R	4.32	4.83	.170	.190

 $\ensuremath{\mathsf{IXYS}}$ Reserves the Right to Change Limits, Test Conditions, and Dimensions.





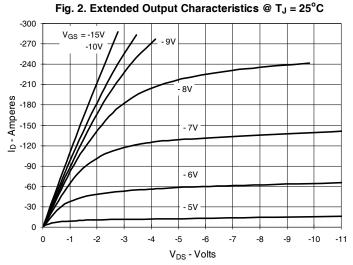
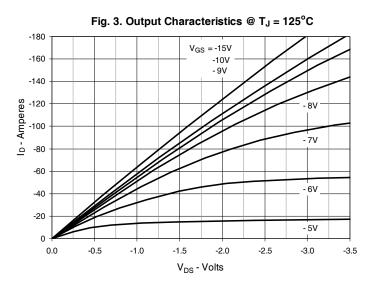
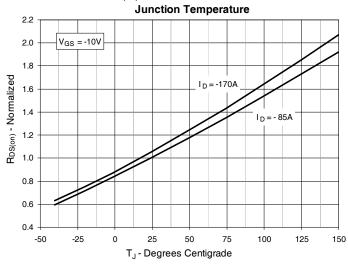
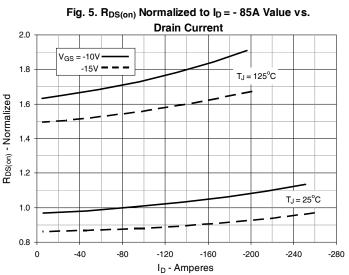
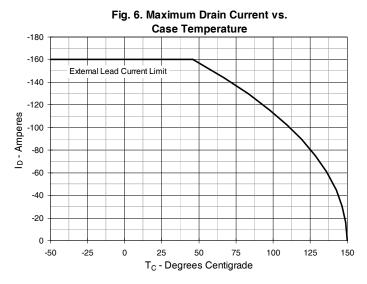


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = -85A$ Value vs.

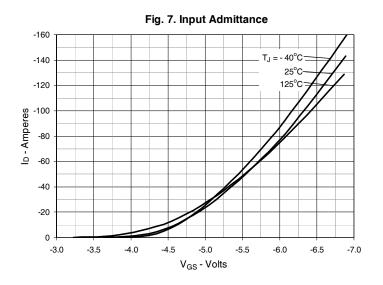


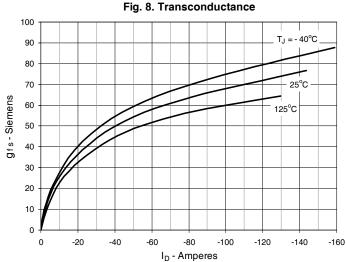


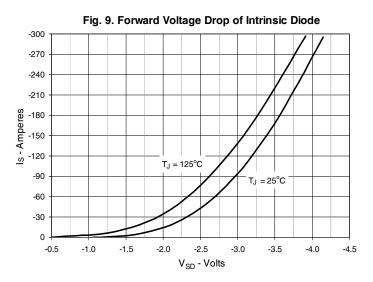


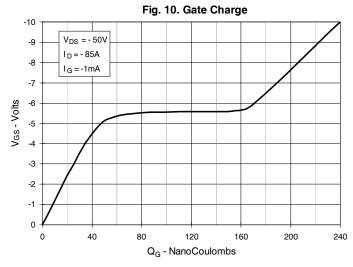


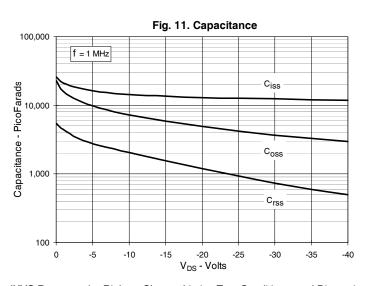


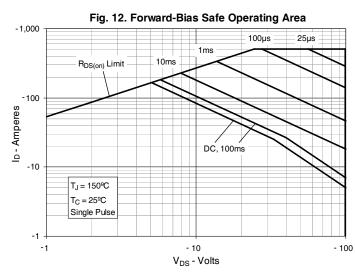






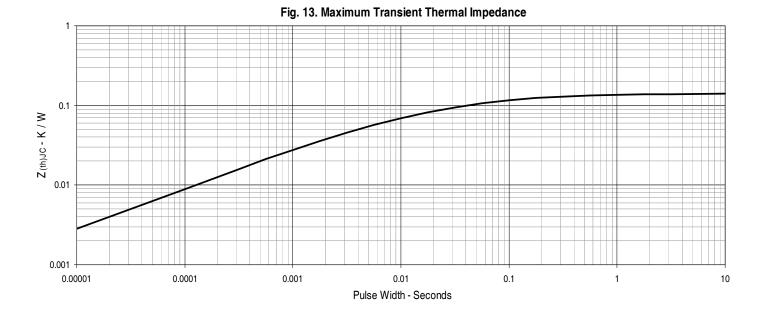






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