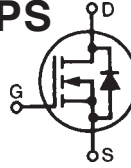


PolarHV™ Power MOSFET

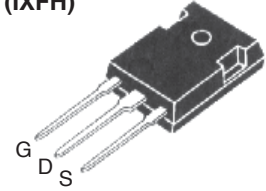
N-Channel Enhancement Mode
Fast Recovery Diode
Avalanche Rated

IXFH 26N60P
IXFQ 26N60P
IXFT 26N60P
IXFV 26N60P
IXFV 26N60PS

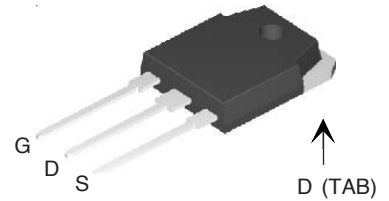
$V_{DSS} = 600 \text{ V}$
 $I_{D25} = 26 \text{ A}$
 $R_{DS(on)} \leq 270 \text{ m}\Omega$
 $t_{rr} \leq 200 \text{ ns}$



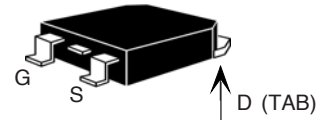
TO-247 (IXFH)



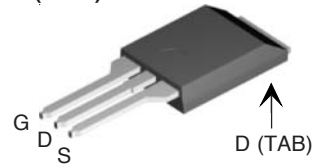
TO-3P (IXFQ)



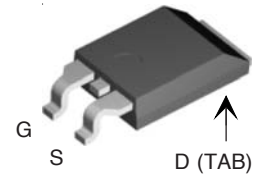
TO-268 (IXFT)



PLUS220 (IXFV)



PLUS220SMD (IXFV_S)



G = Gate D = Drain
S = Source TAB = Drain

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	600	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	600	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	26	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	65	A
I_{AR}	$T_C = 25^\circ\text{C}$	26	A
E_{AR}	$T_C = 25^\circ\text{C}$	40	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	1.2	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$, $R_G = 5 \Omega$	10	V/ns
P_D	$T_C = 25^\circ\text{C}$	460	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	1.6 mm (0.062 in.) from case for 10 s Plastic body	300 250	$^\circ\text{C}$ $^\circ\text{C}$
M_d	Mounting torque (TO-3P&TO-247)	1.13/10	Nm/lb.in.
F_c	Mounting force (PLUS220)	11..65/2.5..15	N/lb
Weight	TO-3P	5.5	g
	TO-248	6.0	g
	TO-268	5.0	g
	PLUS220 & PLUS220SMD	4.0	g

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	600		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4 \text{ mA}$	2.5		V
I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$			25 μA
				250 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$			270 $\text{m}\Omega$

Features

- Fast Recovery diode
- Unclamped Inductive Switching (UIS) rated
- International standard packages
- Low package inductance
- easy to drive and to protect

Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 20\text{ V}; I_D = 0.5 I_{D25}$, pulse test	16	26	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		4150	pF
C_{oss}			400	pF
C_{rss}			27	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 I_{D25}$ $R_G = 5\ \Omega$ (External)		25	ns
t_r			27	ns
$t_{d(off)}$			75	ns
t_f			21	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		72	nC
Q_{gs}			27	nC
Q_{gd}			24	nC
R_{thJC}	TO-3P, PLUS220 & TO-247			0.27 K/W
R_{thCK}			0.21	K/W

Source-Drain Diode		Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
Symbol	Test Conditions	Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{ V}$			26 A
I_{SM}	Repetitive			78 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, pulse test			1.5 V
t_{rr}	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}$		150	250 ns
I_{RM}	$V_R = 100\text{ V}; V_{GS} = 0\text{ V}$		7	A
Q_{RM}			0.7	μC

Characteristic Curves

Fig. 1. Output Characteristics
@ 25°C

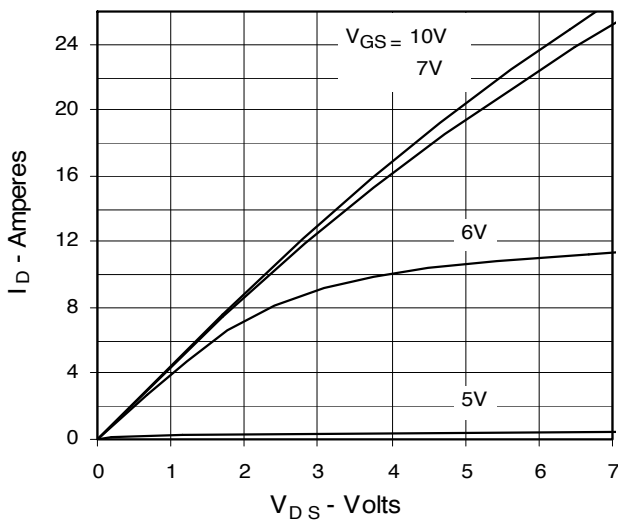
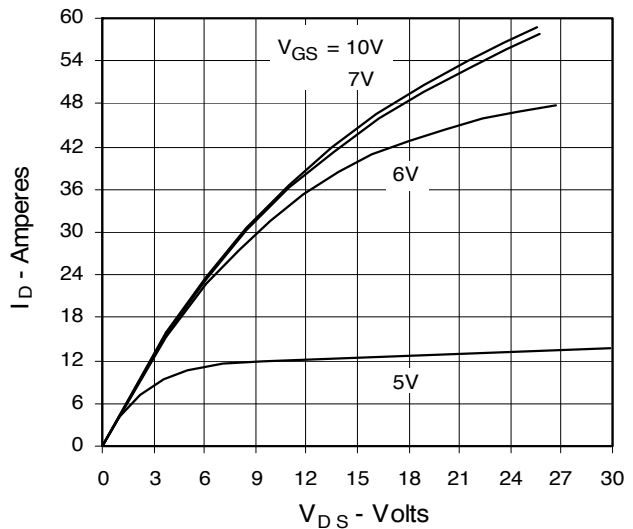


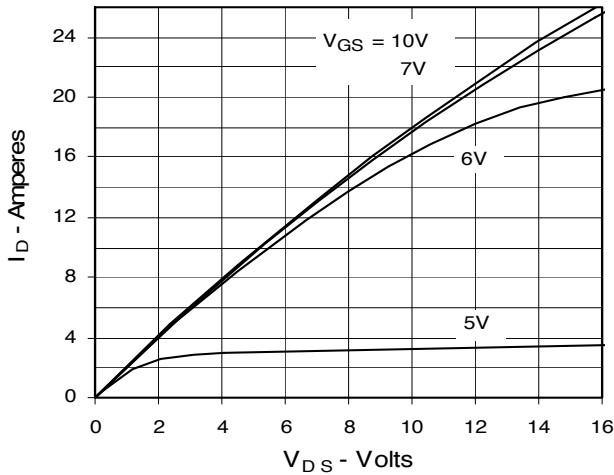
Fig. 2. Extended Output Characteristics
@ 25°C



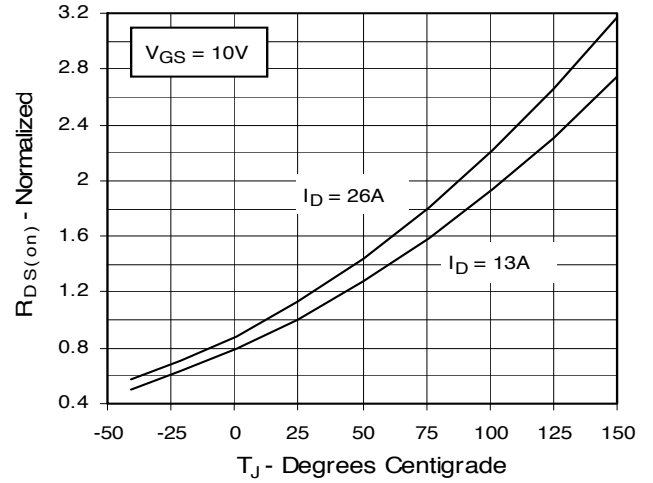
IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:	4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585
	4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692
	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	

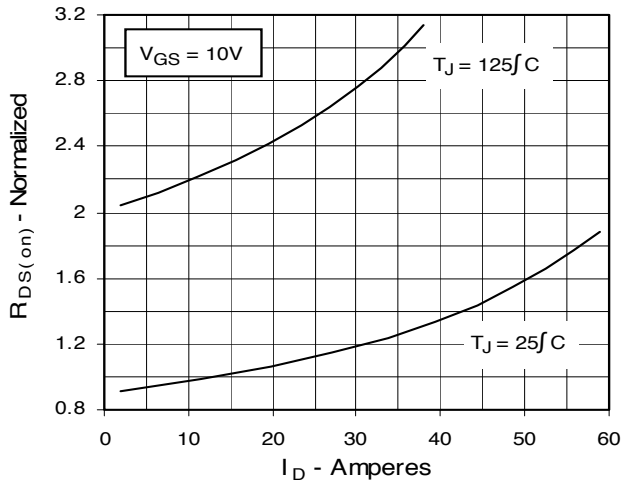
**Fig. 3. Output Characteristics
@ 125°C**



**Fig. 4. $R_{DS(on)}$ Normalized to 0.5 I_{D25}
Value vs. Junction Temperature**



**Fig. 5. $R_{DS(on)}$ Normalized to
0.5 I_{D25} Value vs. I_D**



**Fig. 6. Drain Current vs. Case
Temperature**

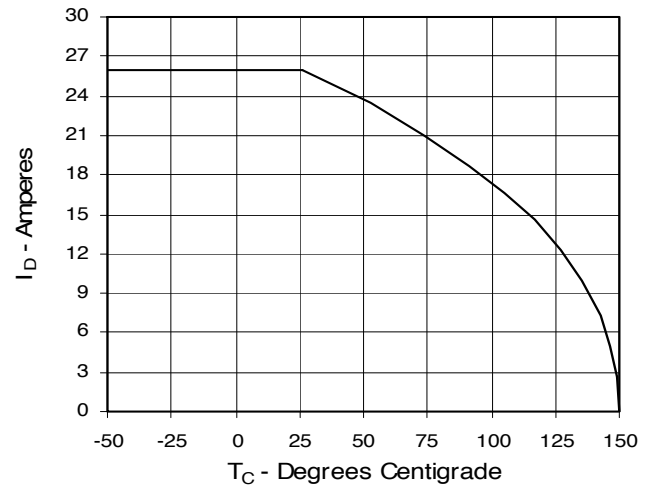


Fig. 7. Input Admittance

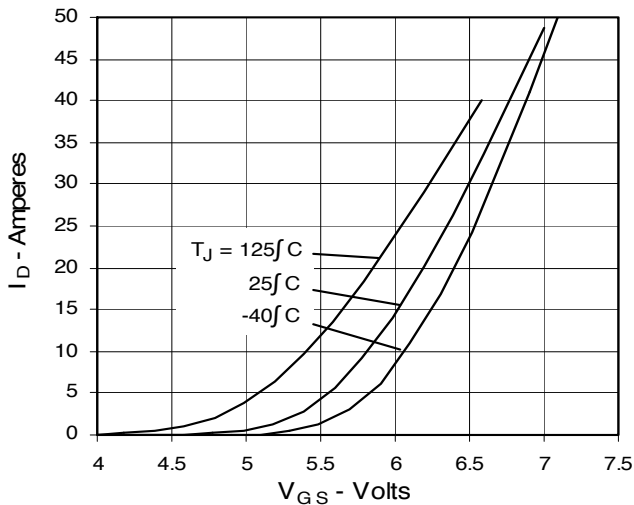


Fig. 8. Transconductance

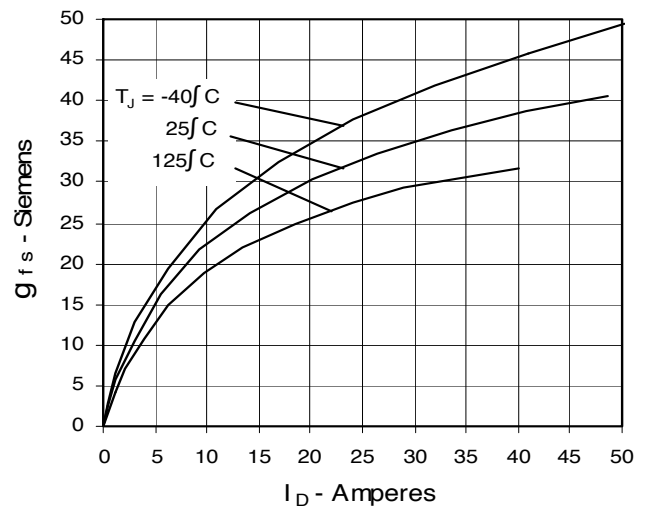


Fig. 9. Source Current vs. Source-To-Drain Voltage

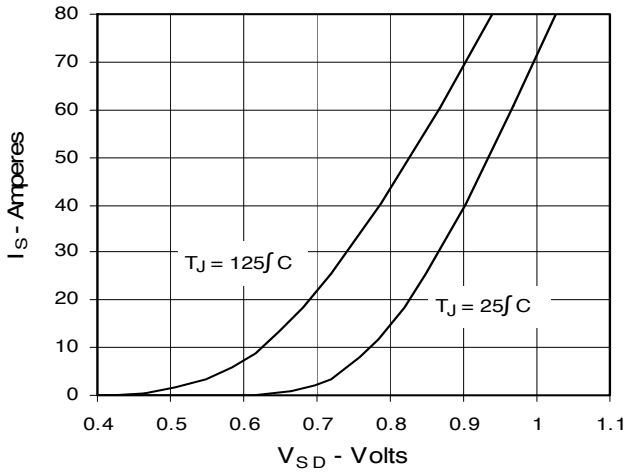


Fig. 10. Gate Charge

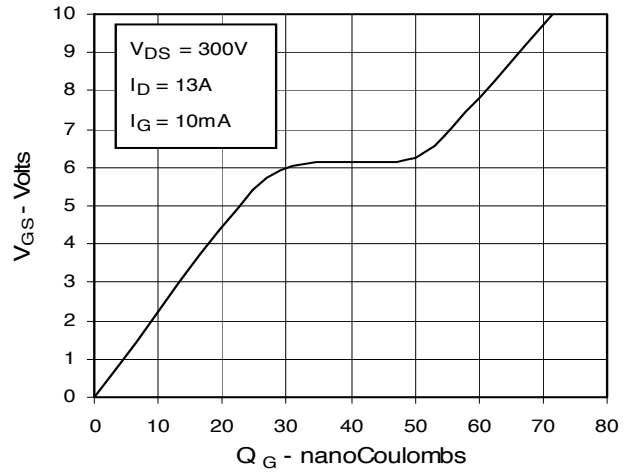


Fig. 11. Capacitance

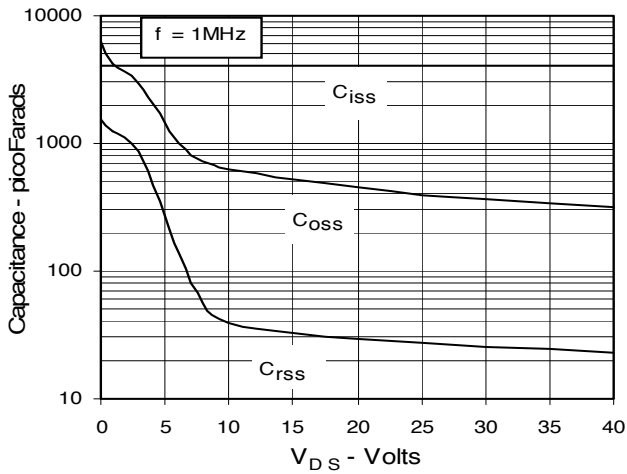
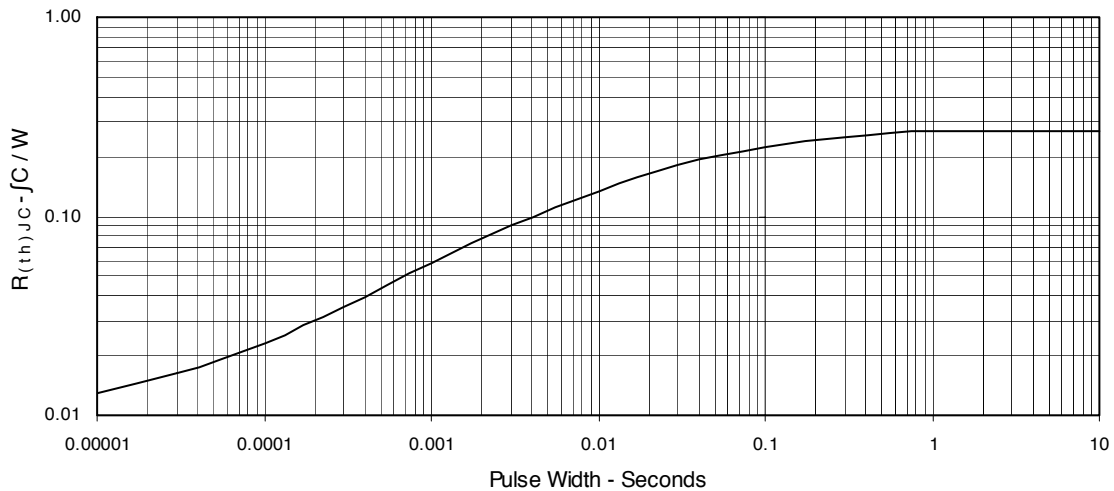
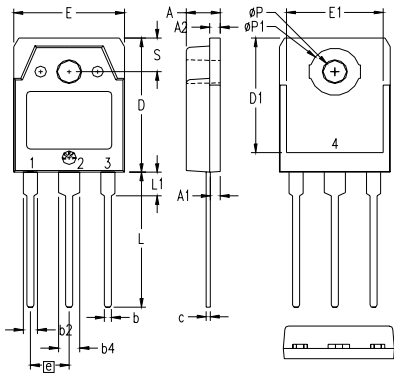


Fig. 12. Maximum Transient Thermal Resistance



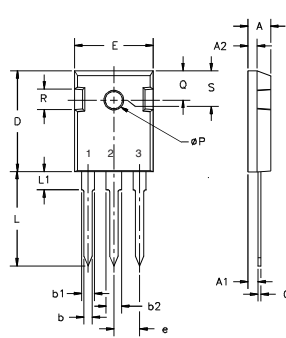
TO-3P (IXFQ) Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.193	4.70	4.90
A1	.051	.059	1.30	1.50
A2	.057	.065	1.45	1.65
b	.035	.045	0.90	1.15
b2	.075	.087	1.90	2.20
b4	.114	.126	2.90	3.20
c	.022	.031	0.55	0.80
D	.780	.791	19.80	20.10
D1	.665	.677	16.90	17.20
E	.610	.622	15.50	15.80
E1	.531	.539	13.50	13.70
e	.215 BSC		5.45 BSC	
L	.779	.795	19.80	20.20
L1	.134	.142	3.40	3.60
phi P	.126	.134	3.20	3.40
phi P1	.272	.280	6.90	7.10
S	.193	.201	4.90	5.10

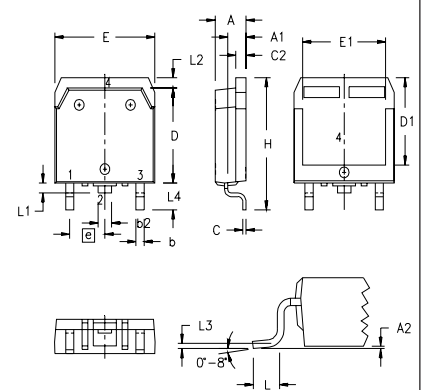
All metal area are tin plated.

TO-247 AD (IXFH) Outline



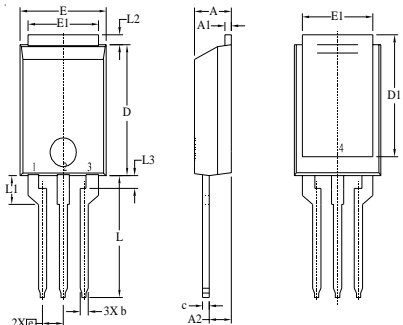
Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A1	2.2	2.54	.087	.102
A2	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b1	1.65	2.13	.065	.084
b2	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
Q	3.55	3.65	.140	.144
R	5.89	6.40	0.232	0.252
S	4.32	5.49	.170	.216
	6.15	BSC	242	BSC

TO-268 (IXFT) Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b2	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D1	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E1	.524	.535	13.30	13.60
e	.215 BSC		5.45 BSC	
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L1	.047	.055	1.20	1.40
L2	.039	.045	1.00	1.15
L3	.010	BSC	0.25	BSC
L4	.150	.161	3.80	4.10

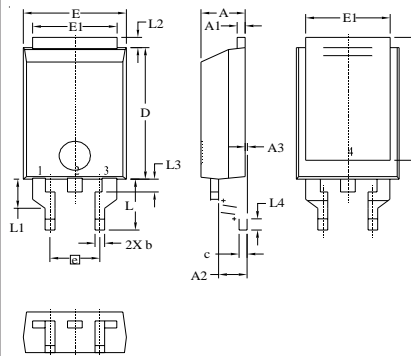
PLUS220 (IXFV) Outline



Terminals: 1 - Gate 2 - Drain
3 - Source TAB - Drain

SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.169	.185	4.30	4.70
A1	.028	.035	0.70	0.90
A2	.098	.118	2.50	3.00
b	.035	.047	0.90	1.20
c	.028	.035	0.70	0.90
D	.551	.591	14.00	15.00
D1	.512	.539	13.00	13.70
E	.394	.433	10.00	11.00
E1	.331	.346	8.40	8.80
e	.100 BSC		2.54	BSC
L	.512	.551	13.00	14.00
L1	.118	.138	3.00	3.50
L2	.035	.051	0.90	1.30
L3	.047	.059	1.20	1.50

PLUS220SMD (IXFV_S)



SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.169	.185	4.30	4.70
A1	.028	.035	0.70	0.90
A2	.098	.118	2.50	3.00
A3	.000	.010	0.00	0.25
b	.035	.047	0.90	1.20
c	.028	.035	0.70	0.90
D	.551	.591	14.00	15.00
D1	.512	.539	13.00	13.70
E	.394	.433	10.00	11.00
E1	.331	.346	8.40	8.80
e	.200BSC		5.08	BSC
L	.209	.228	5.30	5.80
L1	.118	.138	3.00	3.50
L2	.035	.051	0.90	1.30
L3	.047	.059	1.20	1.50
L4	.039	.059	1.00	1.50

Terminals:
1 - Gate
2 - Drain
3 - Source
4 (TAB) - Drain