



Features

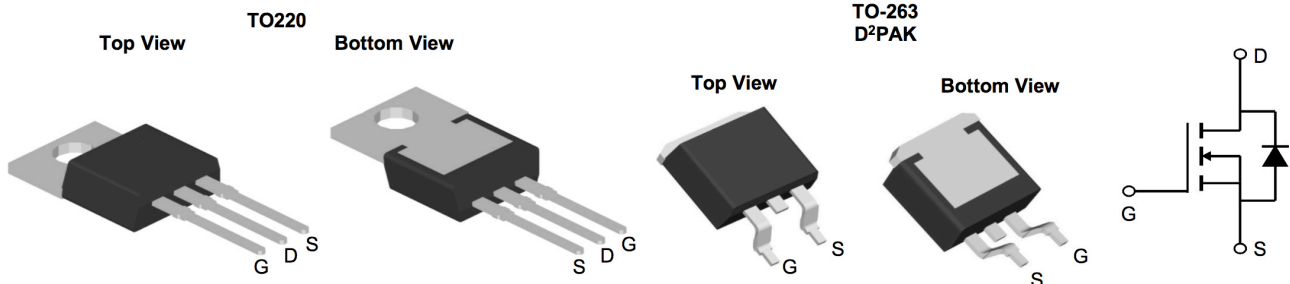
- 100V/195A
 $R_{DS(ON)} = 3.2m\Omega(Typ.)@V_{GS}=10V$
- Advanced HEFE[®] Technology
- Ultra Low On-Resistanc
- Excellent $g_m \times R_{DS(on)}$ Product
- 100% avalanche tested h t t d
- 175°C Operating Temperatur
- Lead Free and Green Devices Available (RoHS Compliant)

Applications

- Motor Drive
- Uninterruptible Power Supplie
- DC/DC converte
- General Purpose Application



● **Pin Configurations**



● **Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted**

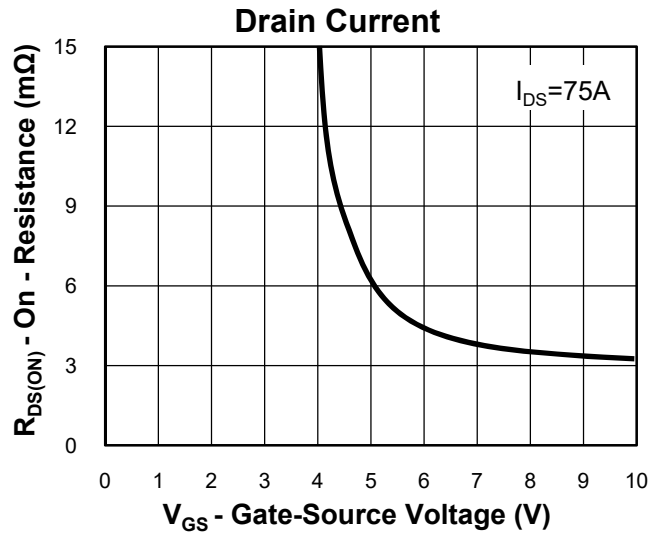
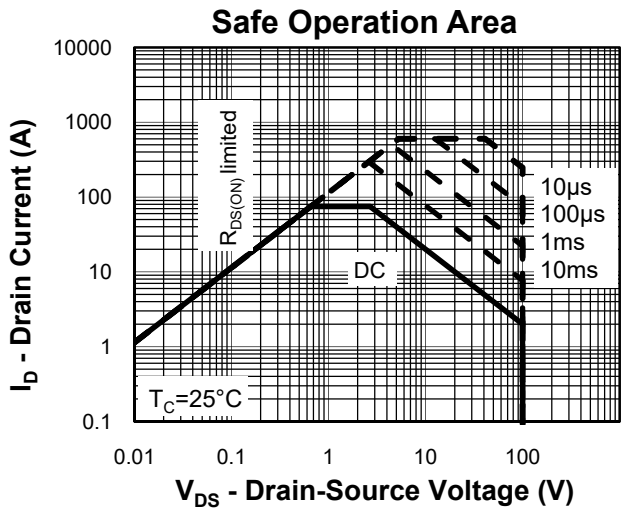
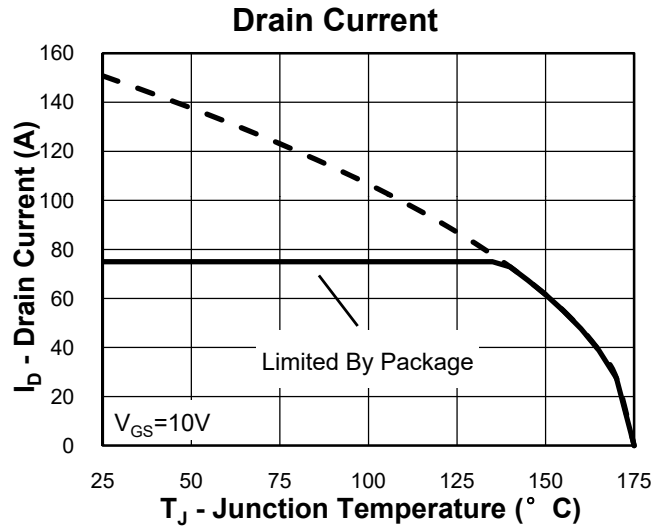
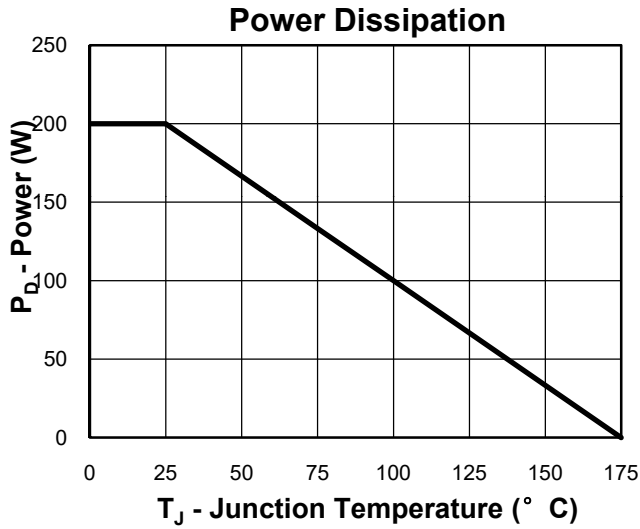
Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current I_D	$T_C=25^\circ C$	I_D	205	A
	$T_C=100^\circ C$		120	
Pulsed Drain Current I_{DM}		I_{DM}	425	A
Continuous Drain Current I_{DSM}	$T_A=25^\circ C$	I_{DSM}	29	A
	$T_A=70^\circ C$		23	
Avalanche Current I_{AS}		I_{AS}	77	A
Avalanche energy $L=0.1mH$ c		EAS	296	mJ
V_{DS} Spike	10 μs	V_{SPIKE}	120	V

Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

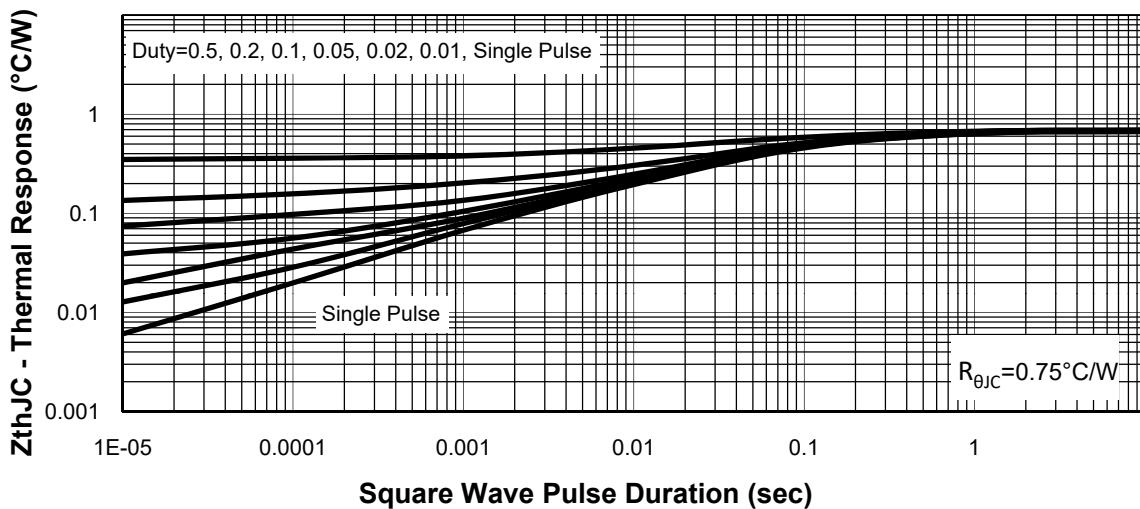
Symbol	Parameter	Test Condition	XPX0115TU			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	100			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$			1	μA
		$T_J=125^\circ C$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2		4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(4)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=75A$		3.2	4	m Ω
Diode Characteristics						
$V_{SD}^{(4)}$	Diode Forward Voltage	$I_{SD}=75A, V_{GS}=0V$			1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=75A, di_{SD}/dt=100A/\mu s$		36		ns
Q_{rr}	Reverse Recovery Charge			28		nC
Dynamic Characteristics ⁽⁵⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$		2.1		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=50V,$ Frequency=1.0MHz		3650		pF
C_{oss}	Output Capacitance			750		
C_{rss}	Reverse Transfer Capacitance			27		
$t_{d(ON)}$	Turn-on Delay Time		$V_{DD}=50V, I_{DS}=75A,$ $V_{GEN}=10V, R_G=2.5\Omega$		24	
t_r	Turn-on Rise Time			13		
$t_{d(OFF)}$	Turn-off Delay Time			49		
t_f	Turn-off Fall Time			17		
Gate Charge Characteristics ⁽⁵⁾						
Q_g	Total Gate Charge	$V_{DS}=80V, V_{GS}=10V,$ $I_{DS}=75A$		87		nC
Q_{gs}	Gate-Source Charge			23		
Q_{gd}	Gate-Drain Charge			15		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 75A.
 - ③ Limited by T_{Jmax} , $I_{AS}=42A$, $V_{DD}=60V$, $R_G=50\Omega$, Starting $T_J=25^\circ C$.
 - ④ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑤ Guaranteed by design, not subject to production testing.

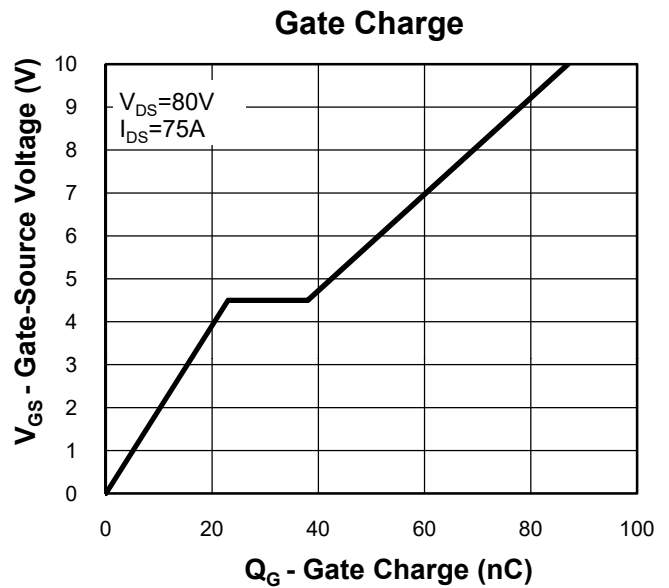
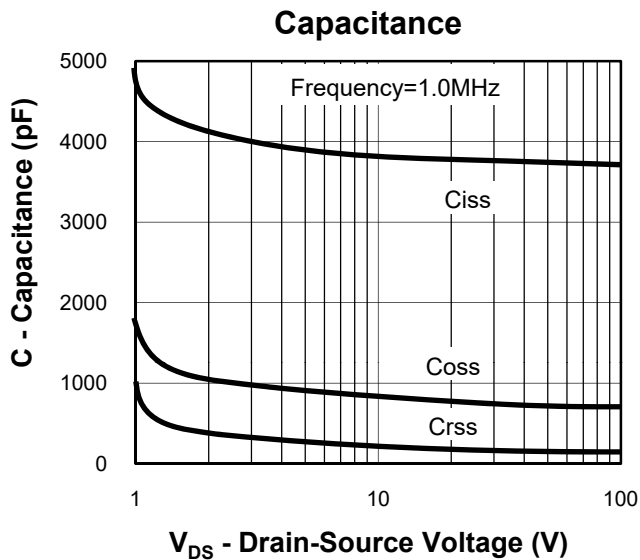
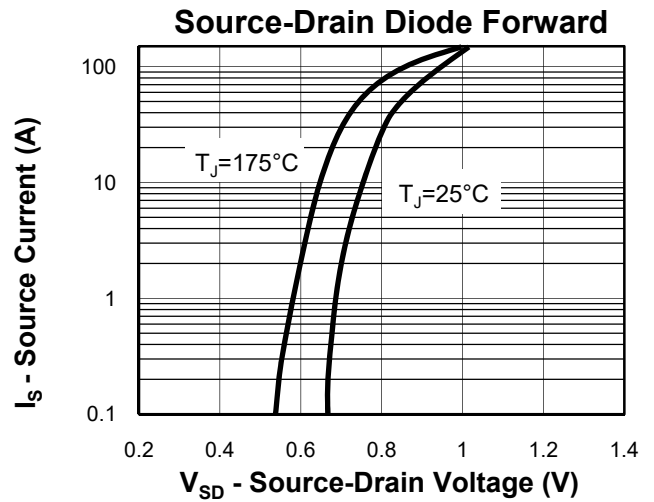
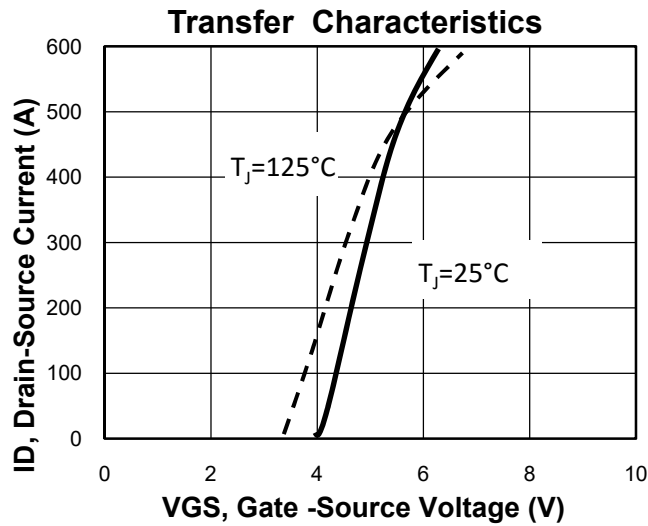
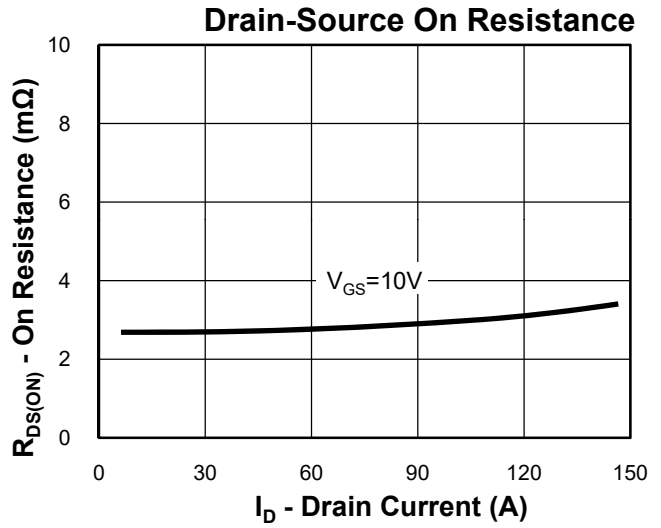
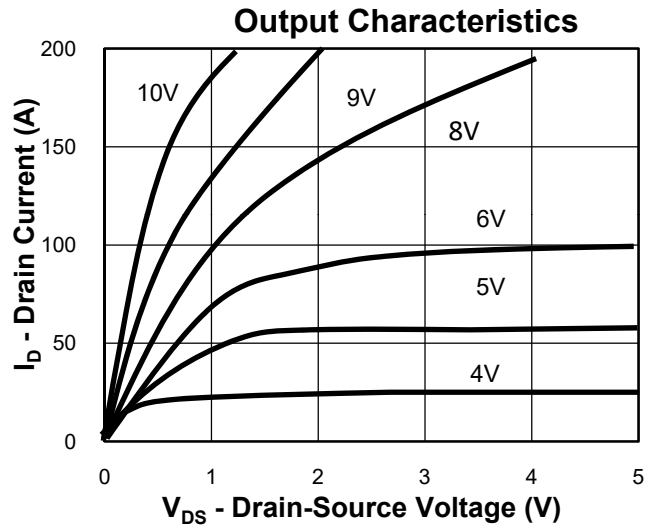
Typical Characteristics



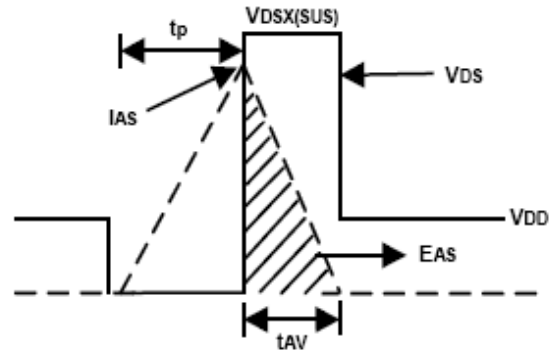
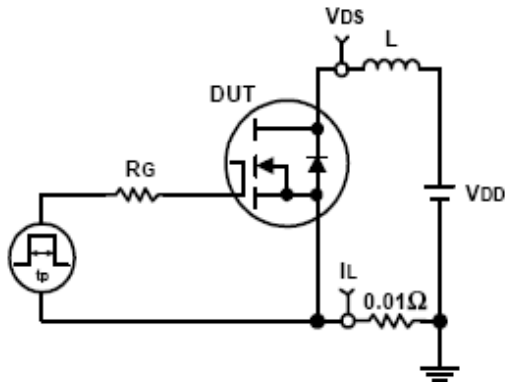
Thermal Transient Impedance



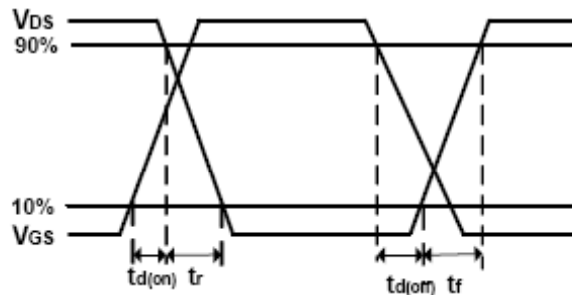
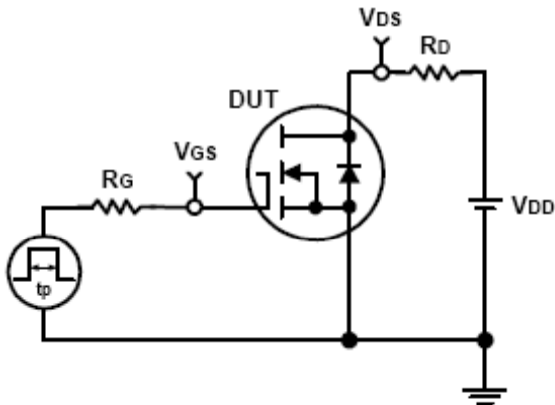
Typical Characteristics



Avalanche Test Circuit and Waveforms

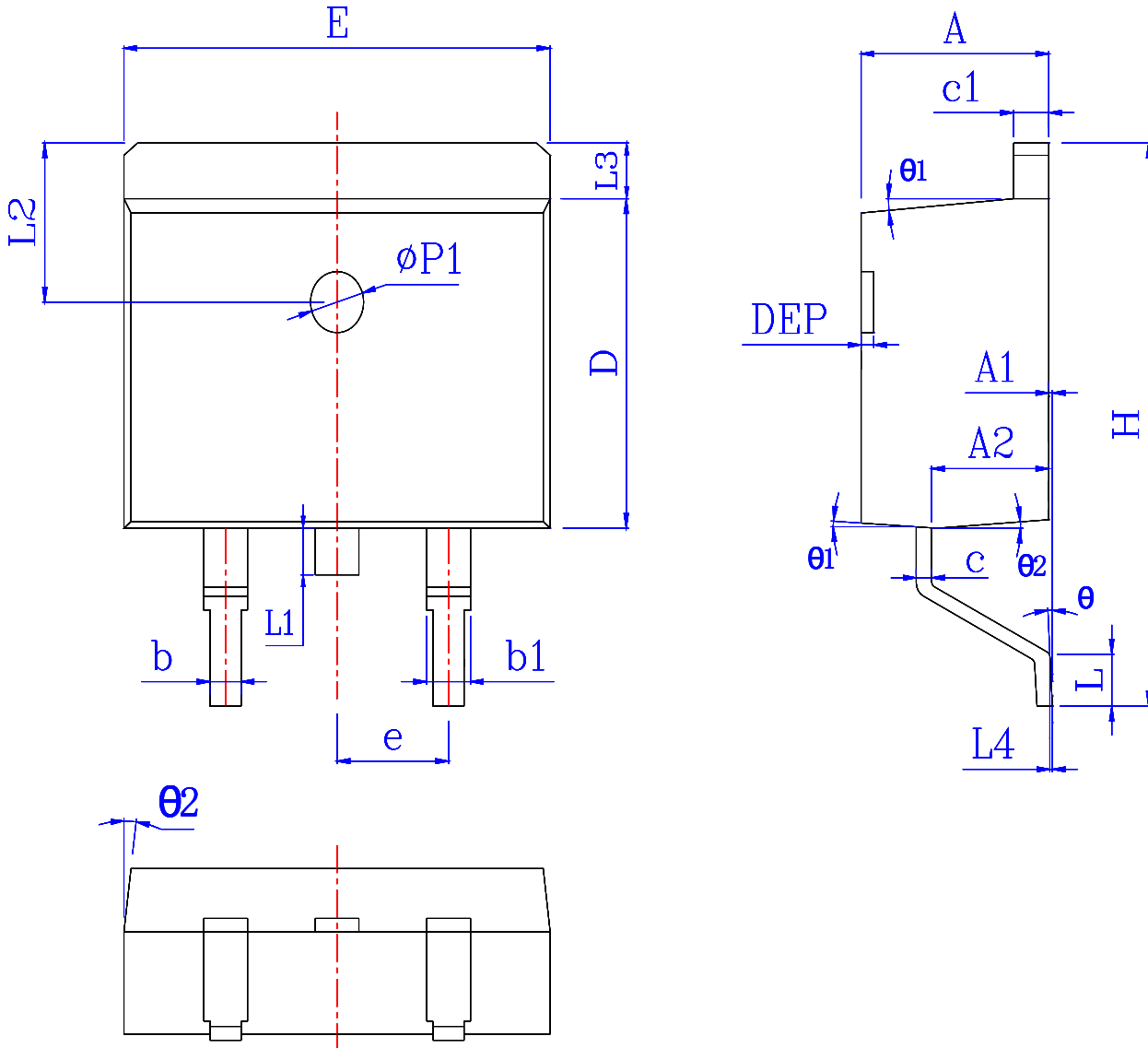


Switching Time Test Circuit and Waveforms



Ordering and Marking Information

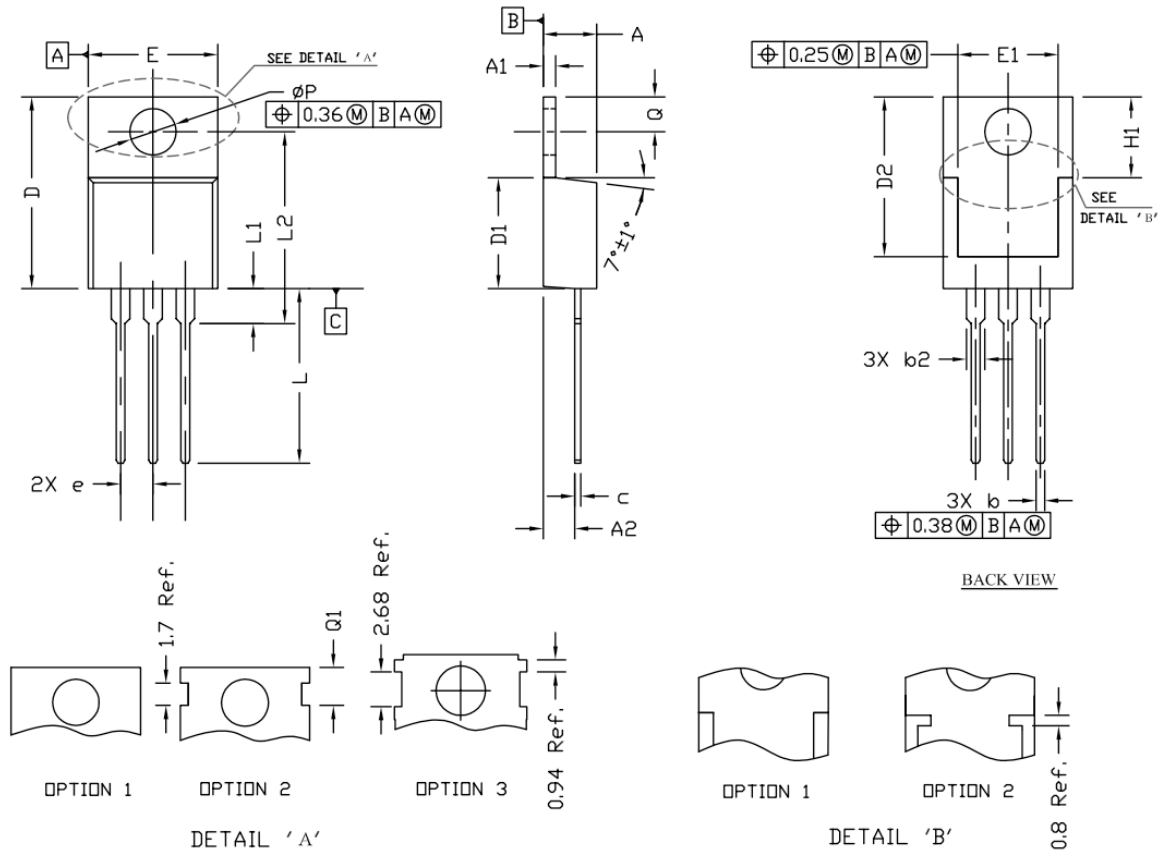
Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
XPX0115TU	XPX0115TU	TO263	Tube	50	-	-
XPX0115TU-R	XPX0115TU	TO263	Tape&Reel	800	13"	24mm

Package Information
TO263


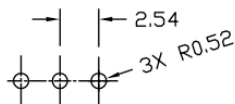
SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.30	4.55	4.85	0.169	0.179	0.191	L	1.94	2.30	2.79	0.076	0.091	0.110
A1	0.00	0.10	0.25	0.000	0.005	0.010	L3	1.02	1.29	1.40	0.040	0.051	0.055
A2	2.20	2.69	2.79	0.087	0.106	0.110	L1	*	*	1.70	*	*	0.067
b	0.70	*	1.00	0.028	*	0.039	L4	0.25 BSC			0.01 BSC		
b1	1.14	*	1.47	0.045	*	0.058	L2	2.50 REF			0.098 REF		
c	0.33	*	0.65	0.013	*	0.026	θ	0°	*	8°	0°	*	8°
c1	1.15	*	1.45	0.045	*	0.057	$\theta1$	5°	7°	9°	5°	7°	9°
D	8.59	*	9.40	0.338	*	0.370	$\theta2$	1°	3°	5°	1°	3°	5°
E	9.66	*	10.40	0.380	*	0.409	DEP	0.05	0.10	0.20	0.002	0.004	0.008
e	2.54BSC			0.100BSC			$\Phi p1$	1.40	1.50	1.60	0.055	0.059	0.063
H	14.70	15.10	15.79	0.579	0.594	0.622							

● Package Information

TO220 PACKAGE OUTLINE



RECOMMENDATION OF HOLE PATTERN



UNIT: mm

NOTE

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS. MOLD FLASH SHOULD BE LESS THAN 6 MIL.
2. TOLERANCE 0.100 MILLIMETERS UNLESS OTHERWISE SPECIFIED.
3. CONTROLLING DIMENSION IS MILLIMETER. CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.30	4.45	4.72	0.169	0.175	0.186
A1	1.15	1.27	1.40	0.045	0.050	0.055
A2	2.20	2.67	2.90	0.087	0.105	0.114
b	0.69	0.81	0.95	0.027	0.032	0.037
b2	1.17	1.37	1.45	0.046	0.050	0.068
c	0.36	0.38	0.60	0.014	0.015	0.024
D	14.50	15.44	15.80	0.571	0.608	0.622
D1	8.59	9.14	9.65	0.338	0.360	0.380
D2	11.43	11.73	12.48	0.450	0.462	0.491
e	2.54 BSC			0.100 BSC		
E	9.66	10.03	10.54	0.380	0.395	0.415
E1	6.22	---	---	0.245	---	---
H1	6.10	6.30	6.50	0.240	0.248	0.256
L	12.27	12.82	14.27	0.483	0.505	0.562
L1	2.47	---	3.90	0.097	---	0.154
L2	---	---	16.70	---	---	0.657
Q	2.59	2.74	2.89	0.102	0.108	0.114
ϕP	3.50	3.84	3.89	0.138	0.151	0.153
Q1	2.70	---	2.90	0.106	---	0.114

Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb device	245°C±5°C	5sec±1 sec
Pb-Free device	260°C+0/-5°C	5sec±1 sec



This integrated circuit can be damaged by ESD. UniverChip Corporation recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedure can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

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