JSBB6115

P-Ch 60V Fast Switching MOSFETs

Description

- ★ Advanced Trench MOSFET Technology
- ★ 100% EAS Guaranteed
- ★ Green Device Available

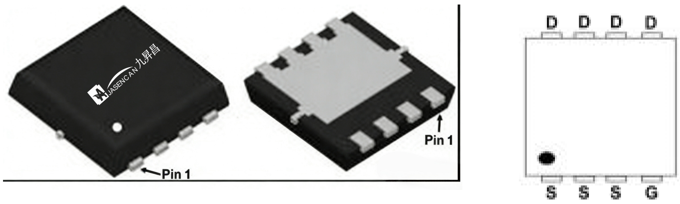
Product Summary

BVDSS	RDSON	ID
-60V	25mΩ	-26A

Applications

- ★ Load Switch.
- ★ Power Management.
- ★ DC/DC Converter.
- ★ LED Backlighting.
- ★ Telecom.

PRPAK3X3 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, $-V_{GS}$ @ -10V[1]	-26	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current, $-V_{GS}$ @ -10V[1]	-16	A
$I_D@T_A=25^{\circ}C$	Continuous Drain Current, $-V_{GS}$ @ -10V[1]	-6.8	A
$I_D@T_A=70^{\circ}C$	Continuous Drain Current, $-V_{GS}$ @ -10V[1]	-5.4	A
I_{DM}	Pulsed Drain Current[2]	-70	A
EAS	Single Pulse Avalanche Energy[3]	113	mJ
I_{AS}	Avalanche Current	47.6	A
$P_D@T_C=25^{\circ}C$	Total Power Dissipation[4]	31.25	W
$P_D@T_A=25^{\circ}C$	Total Power Dissipation[4]	2	W
T_{STG}	Storage Temperature Range	-55 to 150	˚C
T_J	Operating Junction Temperature Range	-55 to 150	˚C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	62	˚C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	4	˚C/W

Electrical Characteristics (T_J=25 ˚C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V , I_D=-12A	---	20	25	mΩ
		V_{GS}=-4.5V , I_D=-10A	---	25	33	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1.0	-1.5	-2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-48V , V_{GS}=0V , T_J=25˚C	---	---	1	uA
		V_{DS}=-48V , V_{GS}=0V , T_J=55˚C	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-12A	---	23	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	7	---	Ω
Q_g	Total Gate Charge (-4.5V)	V_{DS}=-20V , V_{GS}=-4.5V , I_D=-12A	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	6.7	---	
Q_{gd}	Gate-Drain Charge		---	5.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-15V , V_{GS}=-10V , R_G=3.3Ω, I_D=-1A	---	38	---	ns
T_r	Rise Time		---	23.6	---	
$T_{d(off)}$	Turn-Off Delay Time		---	100	---	
T_f	Fall Time		---	6.8	---	
C_{iss}	Input Capacitance	V_{DS}=-15V , V_{GS}=0V , f=1MHz	---	3635	---	pF
C_{oss}	Output Capacitance		---	224	---	
C_{rss}	Reverse Transfer Capacitance		---	141	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	---	---	-26	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=-1A , T_J=25˚C	---	---	-1	V

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=-25V,V_{GS}=-10V,L=0. 1mH,I_{AS}=-47.6A
4.The power dissipation is limited by 150˚C junction temperature
5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

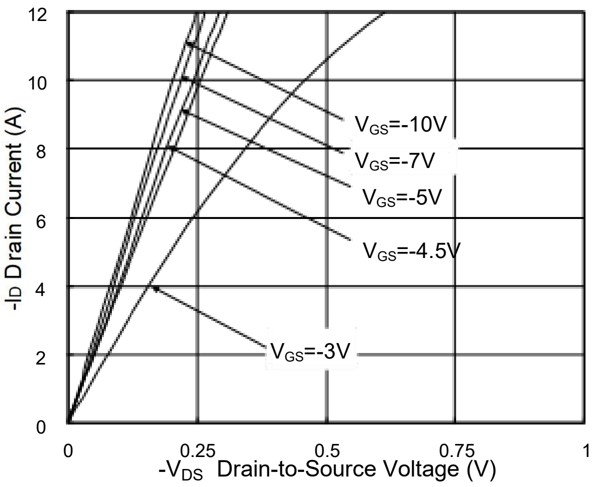


Fig.1 Typical Output Characteristics

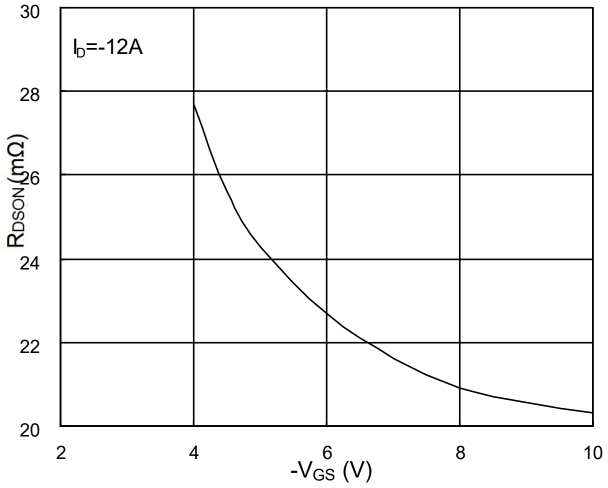


Fig.2 On-Resistance vs G-S Voltage

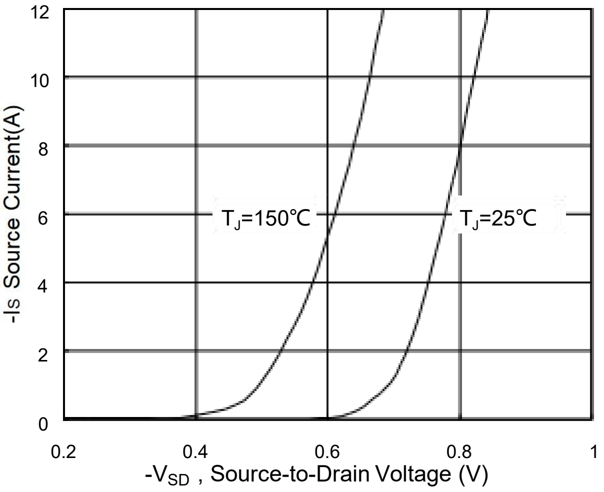


Fig.3 Source Drain Forward Characteristics

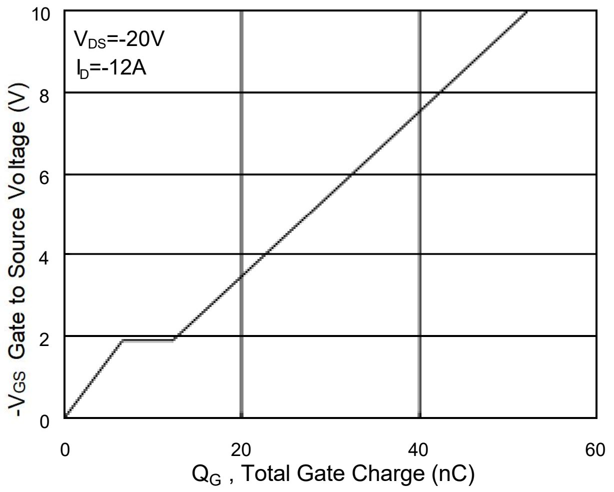


Fig.4 Gate-Charge Characteristics

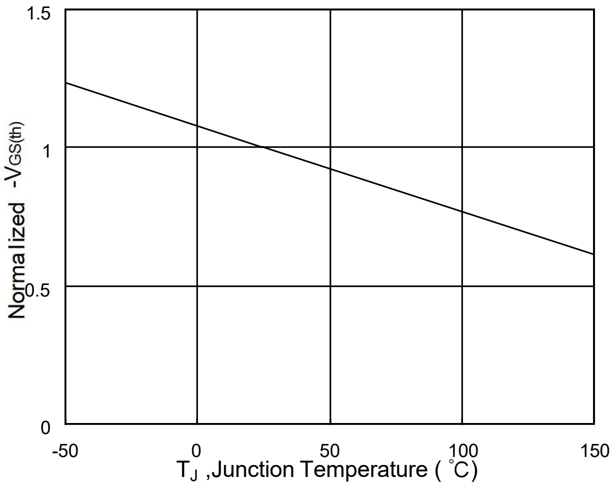


Fig.5 Normalized $V_{GS(th)}$ vs T_J

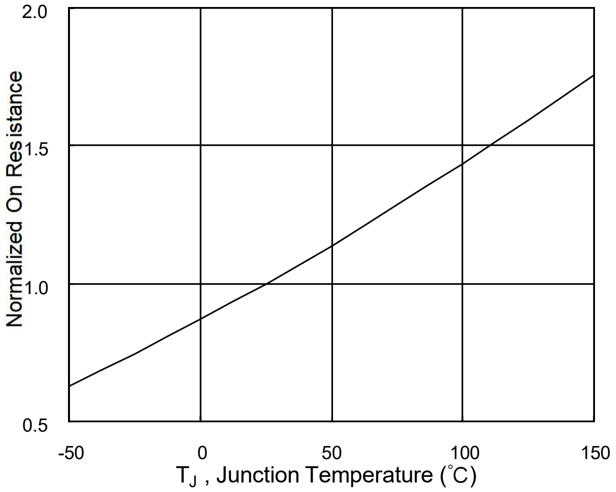


Fig.6 Normalized R_{DSON} vs T_J

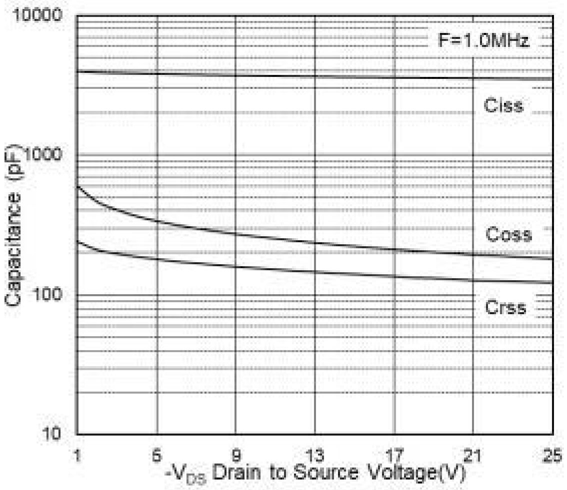


Fig.7 Capacitance

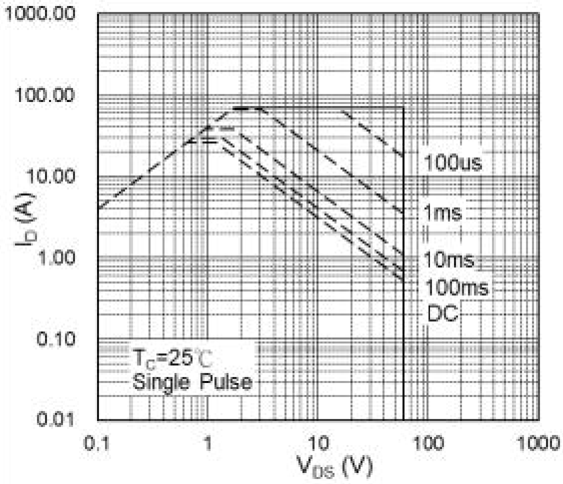


Fig.8 Safe Operating Area

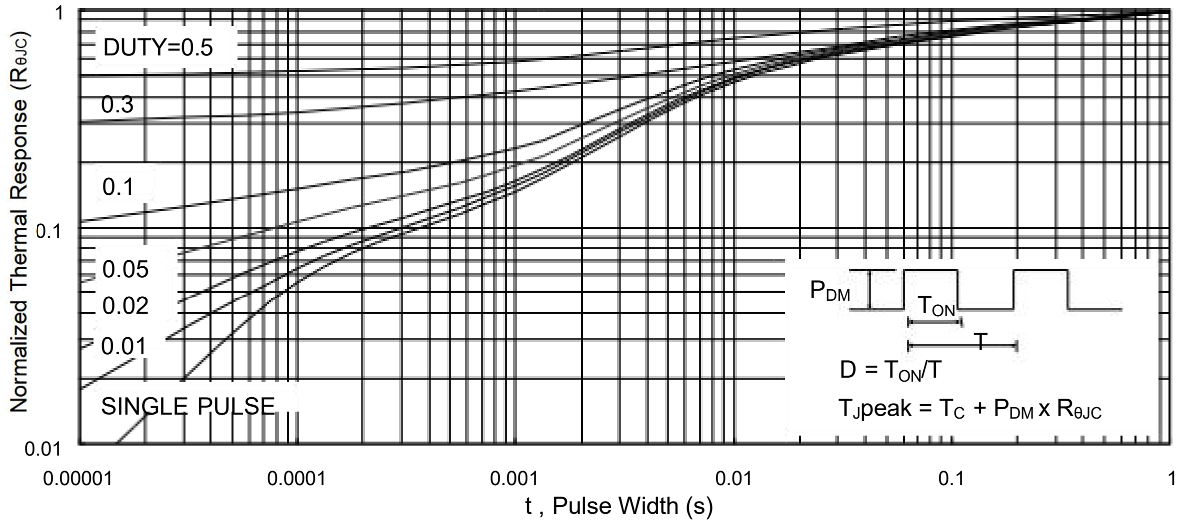
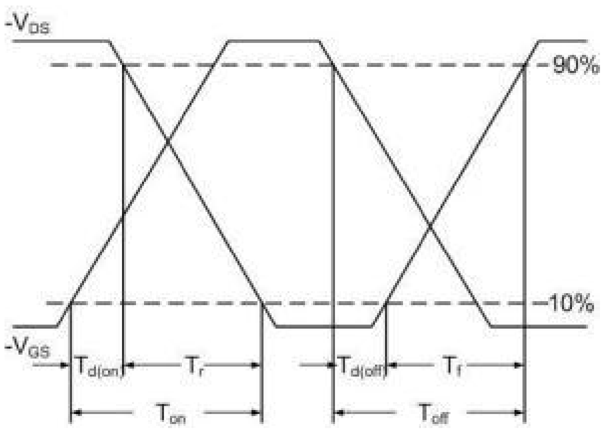


Fig.9 Normalized Maximum Transient Thermal Impedance



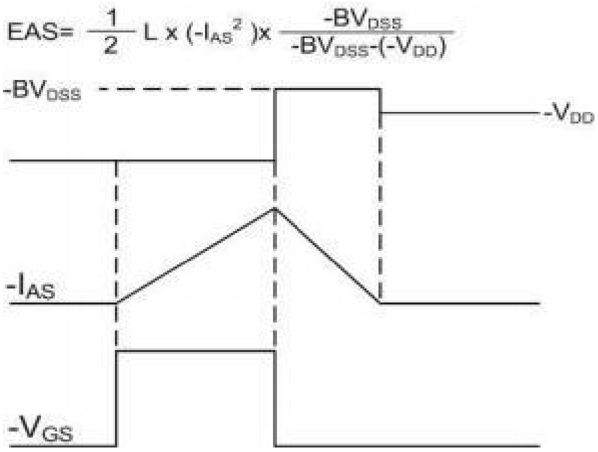
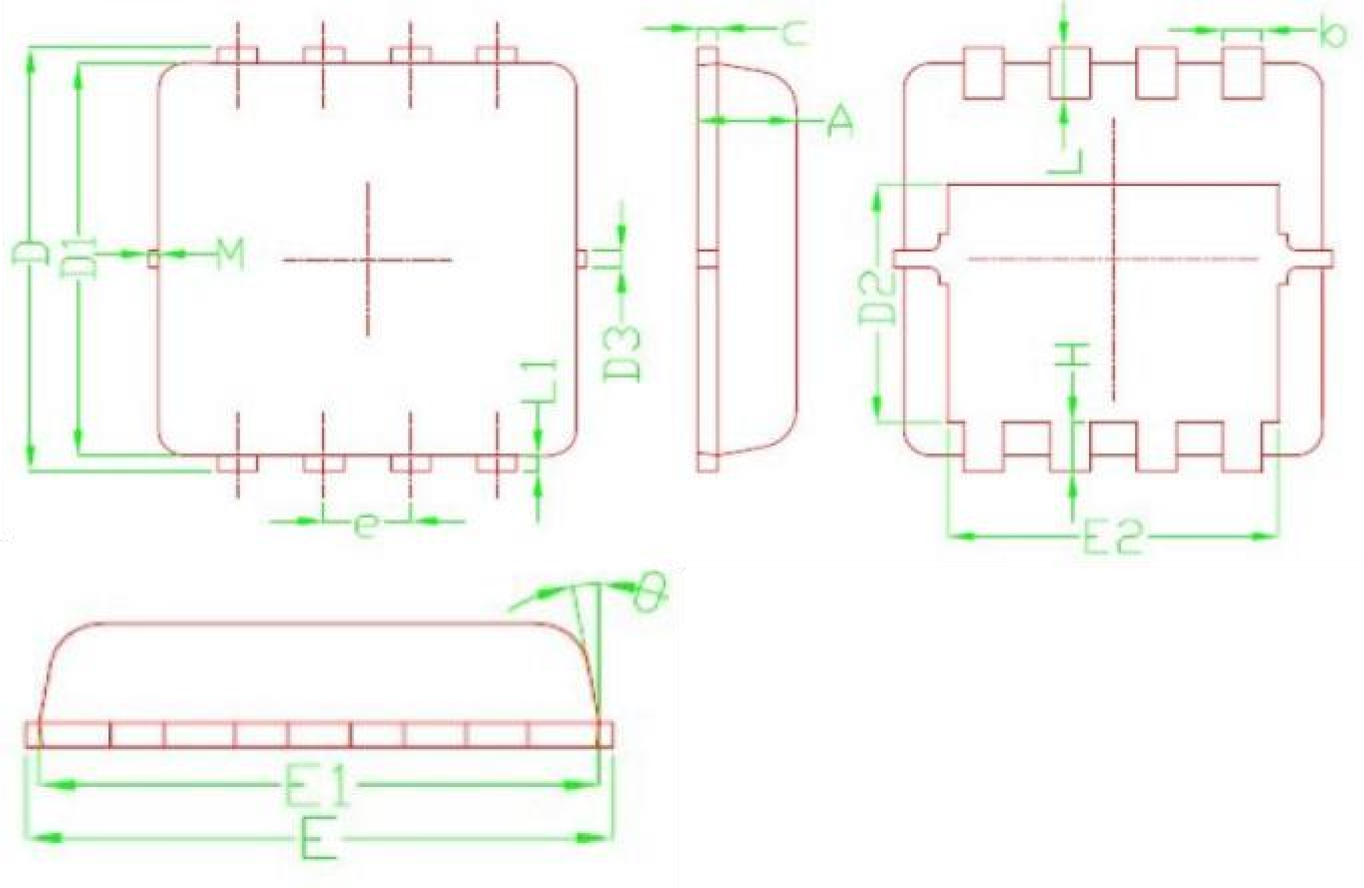


Fig.10 Switching Time Waveform

Fig.11 Unclamped Inductive Waveform

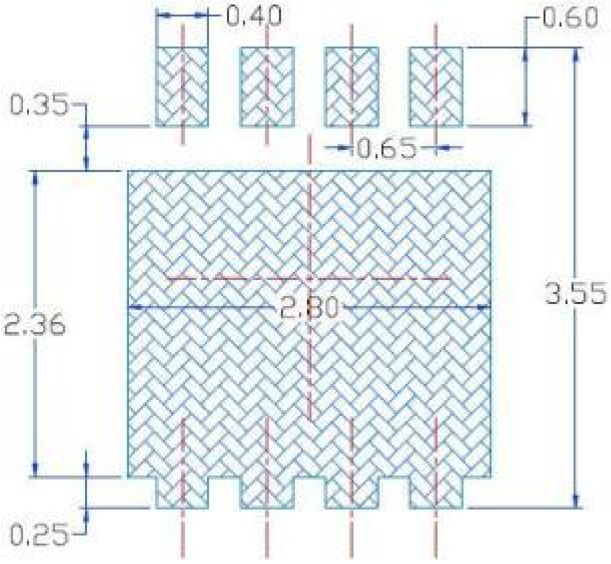
PRPAK3x3-8L Package Outline



SYMBOL	MIN	NOM	MAX
A	0.70	----	0.85
b	0.20	----	0.40
c	0.10	----	0.25
D	3.15	----	3.45
D1	2.90	----	3.20
D2	1.54	----	1.98
D3	0.10	0.20	0.30
E	3.15	----	3.45
E1	3.00	----	3.25
E2	2.29	----	2.65
e	0.65 BSC		
H	0.28	----	0.65
g	0°	----	14°
L	0.30	----	0.50
L1	----	0.13	----
M	----	----	0.15

Unit: mm

Land Pattern



JSBB 系列 (PRPAK3X3)包装规范

1包.装方式 Packing Method(Tape and Reel)

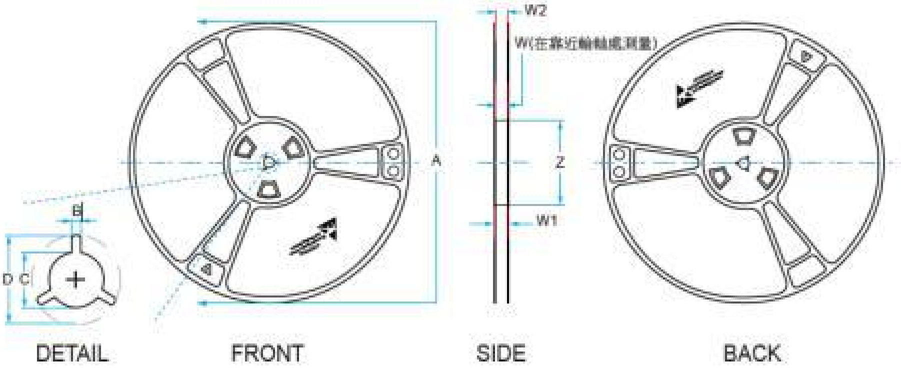
Reel Color ： 蓝色 or黑色
Carrier Tape： 黑色
Cover Tape ： 热溶性

Trailer 后(空格)： >300mm
Leader 前(空格)： >500mm

Reel尺寸	卷盘数量	铝箔袋	内盒数量	外箱数量
13吋	3,000pcs	3,000pcs	6,000pcs	36,000 pcs

备注： 外箱依各封测厂现有通用外箱做出货，故实际外箱数量会有差异 。

1.1 Reel Dimensions



Tape Size	A	B	C	D	Z	W	W1	W2
12mm	Φ330.0±2.0	2.9±0.5	Φ13.0+0.5	Φ23.0±1.0	178.0-2.0	12.4+2.0	18.4±0.5	12.0~15.0

1.2. Carrier Tape Dimensions