

N-Ch Trench MOSFET

KU3600N10SZA

This Trench MOSFET has better characteristics, such as fast switching time, low on resistance, low gate charge and excellent avalanche characteristics. It is mainly suitable for LED Lighting and DC/DC Converters.

FEATURES

- $V_{DSS(Min.)}=100V$, $I_D=1.3A$
- Drain-Source ON Resistance: $R_{DS(ON)}=0.36\Omega(max)$ @ $V_{GS}=10V$
- $Q_g(typ.)=3.3nC$

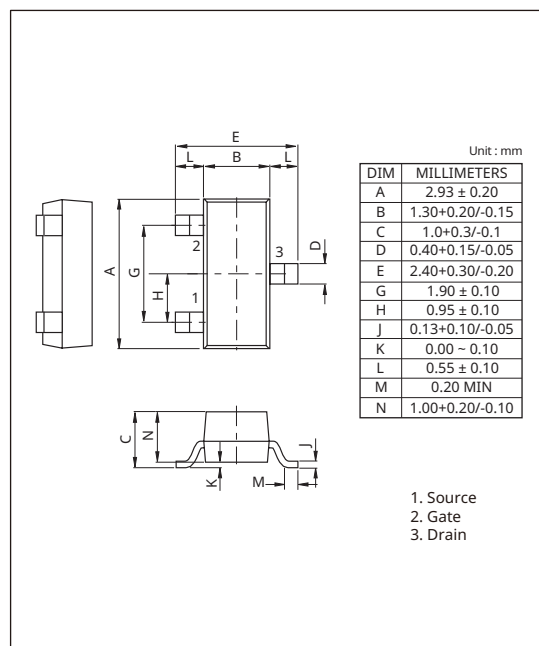
APPLICATION

- Battery Operated Systems
- Direct logic-level Interface
- Voltage controlled small signal switch

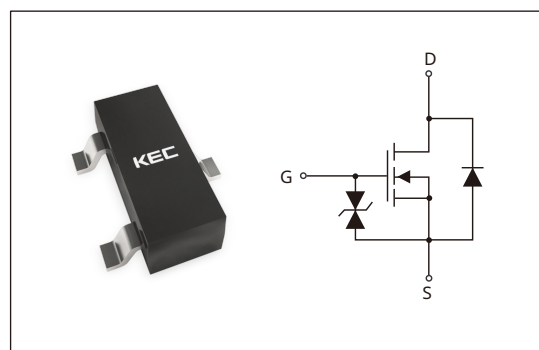
ORDERING INFORMATION

PART NUMBER	QTY PER BOX	BOX SIZE
KU3600N10SZA-RTK/H	6,000pcs	185 X 185 X 40mm

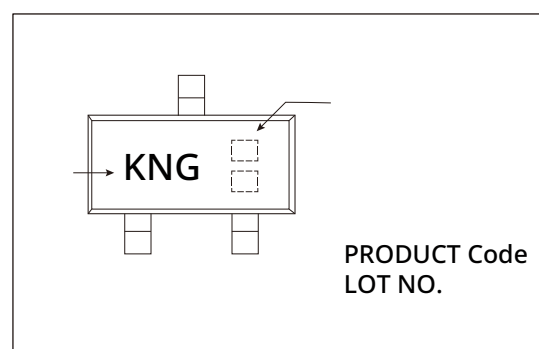
PACKAGE DIMENSION(SOT-23)



PIN CONFIGURATION



MARKING CODE



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MAXIMUM RATING (T_J=25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Drain-Source Voltage		V _{DSS}	100	V
Gate-Source Voltage		V _{GSS}	±18	V
Drain Current	@T _A = 25°C	I _D	1.3*	A
	@T _A = 100°C	I _D	0.8*	
	Pulsed (Note 1)	I _{DP}	5.2*	
Peak Diode Recovery dv/dt (Note 2)		dv/dt	4.5	V/ns
Drain Power Dissipation	@T _A = 25°C	P _D	1.25*	W
	Derate above 25°C		0.01	W/°C
Maximum Junction Temperature		T _J	150	°C
Operation and Storage Temperature Range		T _{opr} , T _{stg}	-55 ~ 150	°C
Thermal Characteristics				
Thermal Resistance, Junction-to-Ambient	@T _A = 25°C	R _{thJA}	100*	°C/W

* : Surface Mounted on 2" X 2" FR4 Board t ≤ 10sec.

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ELECTRICAL CHARACTERISTICS(T_J= 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	100	-	-	V
Breakdown Voltage Temperature Coefficient		BV _{DSS} / T _J	I _D =250μA, Referenced to 25°C	-	0.1	-	V/°C
Drain Cut-off Current		I _{DSS}	V _{DS} =100V, V _{GS} =0V	-	-	10	μA
Gate Threshold Voltage		V _{th}	V _{DS} =V _{GS} , I _D =250μA	1.0	-	2.5	V
Gate Leakage Current		I _{GSS}	V _{GS} =±16V, V _{DS} =0V	-	-	±10	μA
Drain-Source ON Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =0.6A	-	0.30	0.36	Ω
			V _{GS} =4.5V, I _D =0.6A		-	0.44	
Dynamic							
Total Gate Charge	V _{GS} =10V	Q _g	V _{DS} =50V, I _D =1.3A V _{GS} =10V (Note 3, 4)	-	3.3	-	nC
	V _{GS} =4.5V			-	1.7	-	
Gate-Source Charge		Q _{gs}		-	0.2	-	
Gate-Drain Charge		Q _{gd}		-	1.0	-	
Turn-on Delay time		t _{d(on)}	V _{DD} =50V, I _D =1.3A R _G =6Ω V _{GS} =10V (Note 3, 4)	-	4.7	-	

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Fig1. $V_{DS} - I_D$

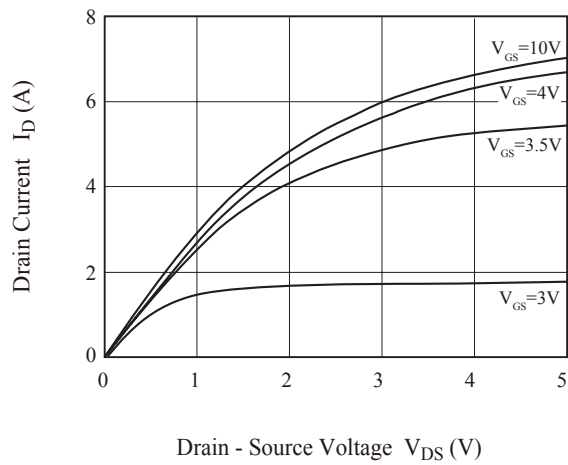


Fig2. $R_{DS(ON)} - I_D$

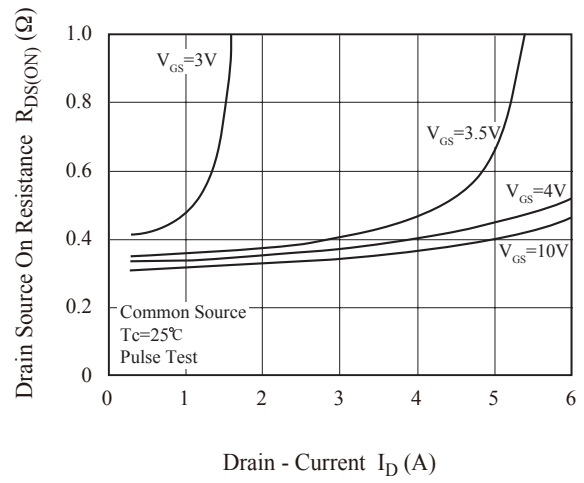


Fig3. $I_D - V_{GS}$

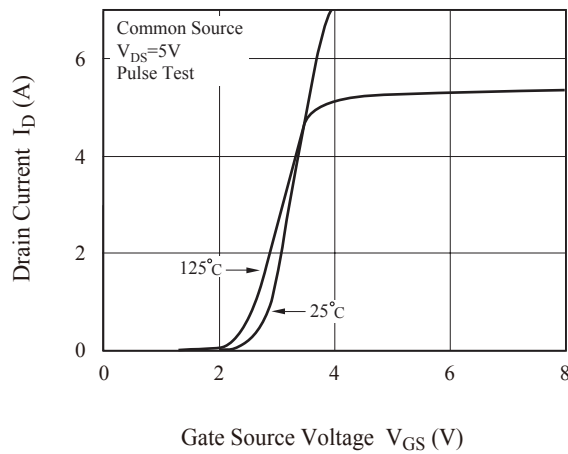


Fig4. $R_{DS(ON)} - T_J$

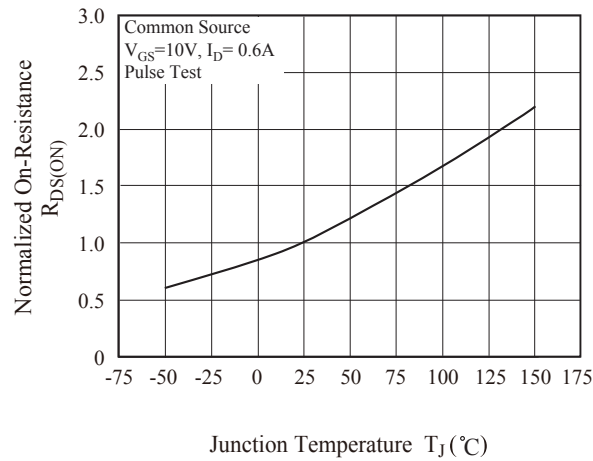


Fig5. $V_{th} - T_J$

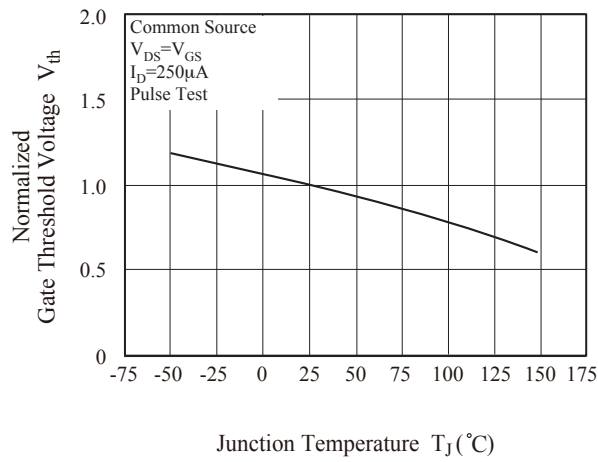
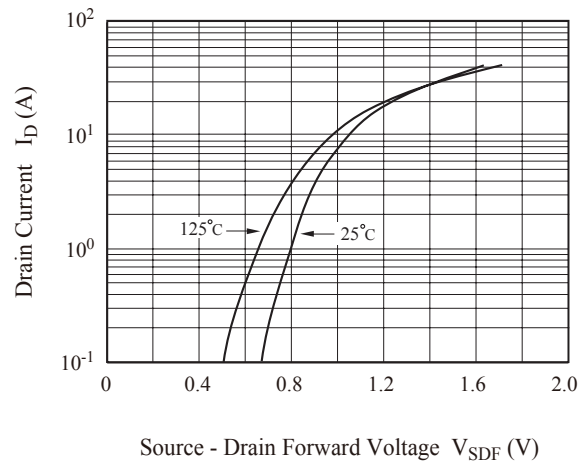


Fig6. $I_S - V_{SDF}$



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Fig7. BV_{DSS} - T_J

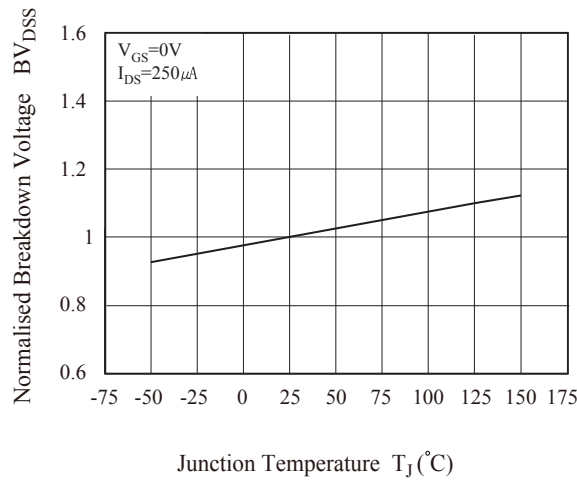


Fig8. C - V_{DS}

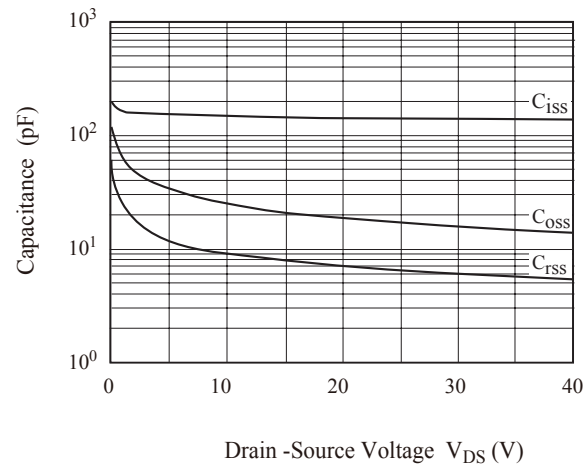


Fig9. Q_g - V_{GS}

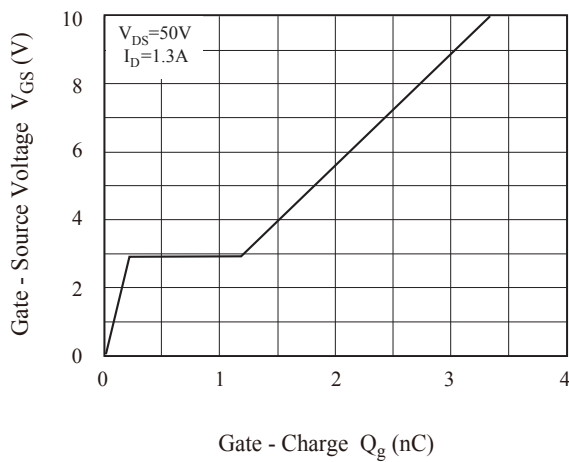


Fig10. Safe Operation Area

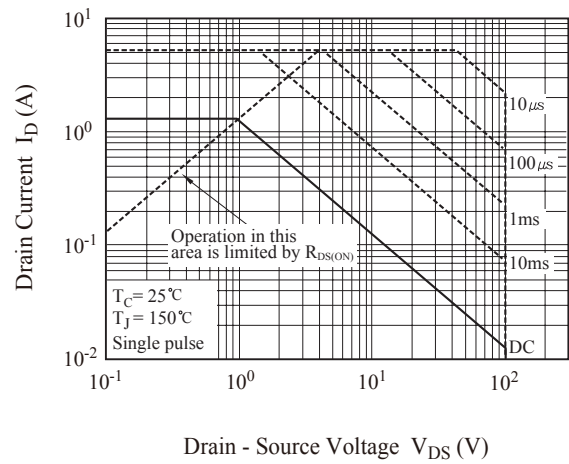
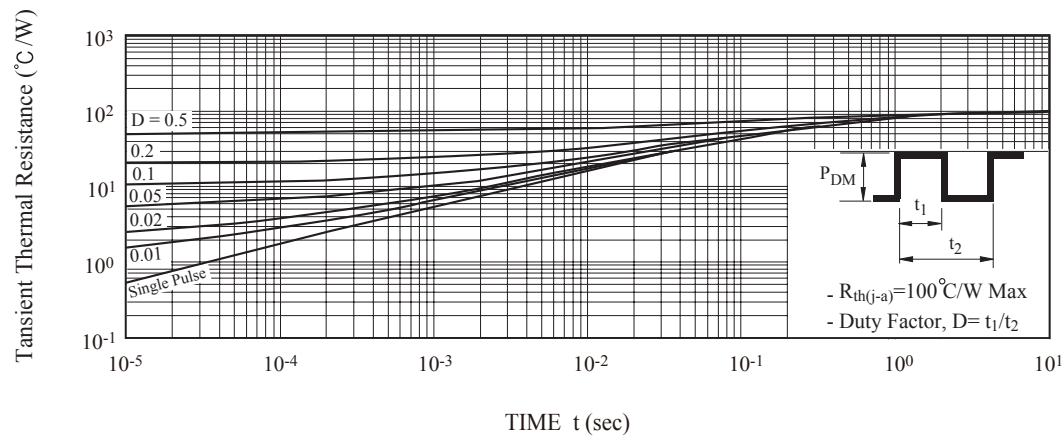


Fig11. Transient Thermal Response Curve



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Fig12. Gate Charge

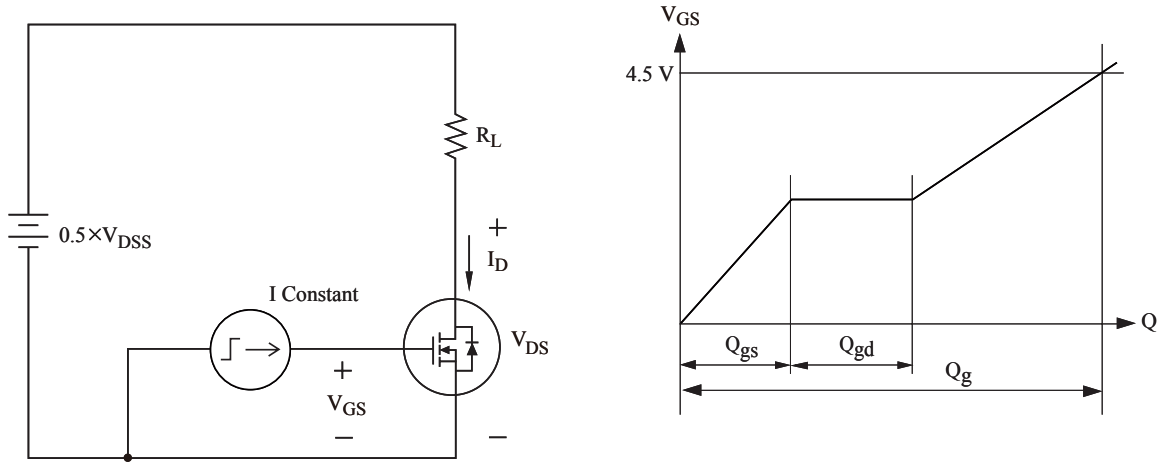


Fig13. Resistive Load Switching

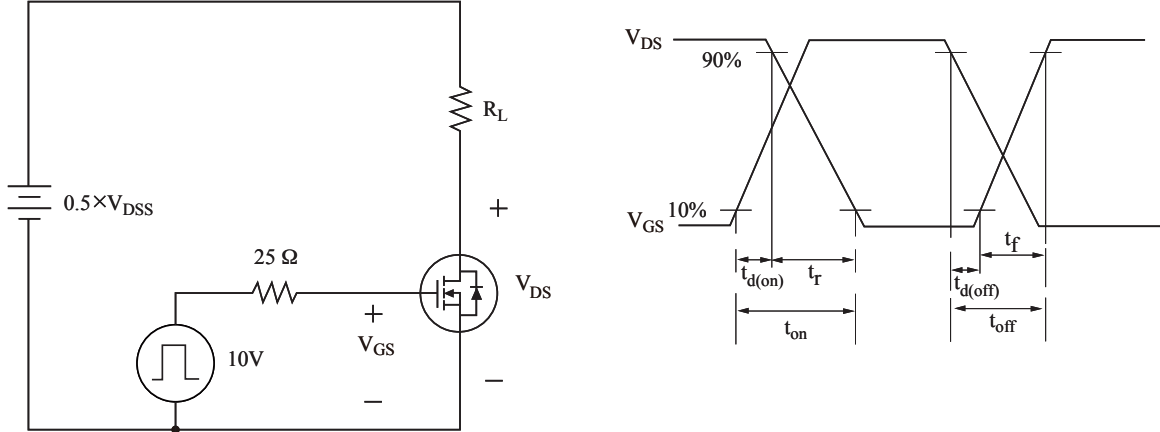
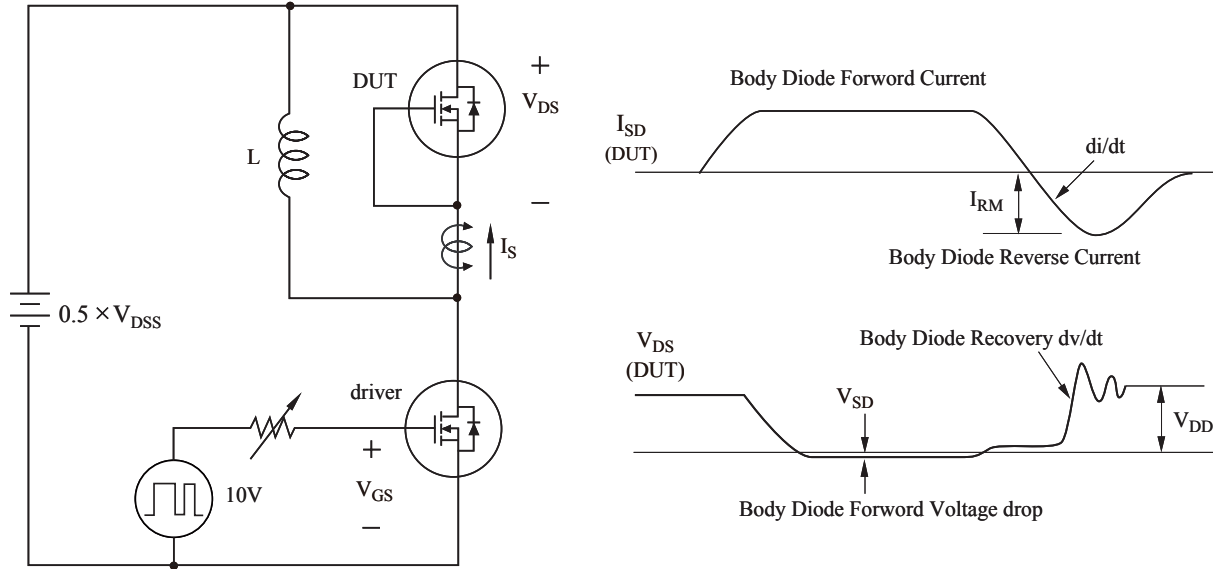


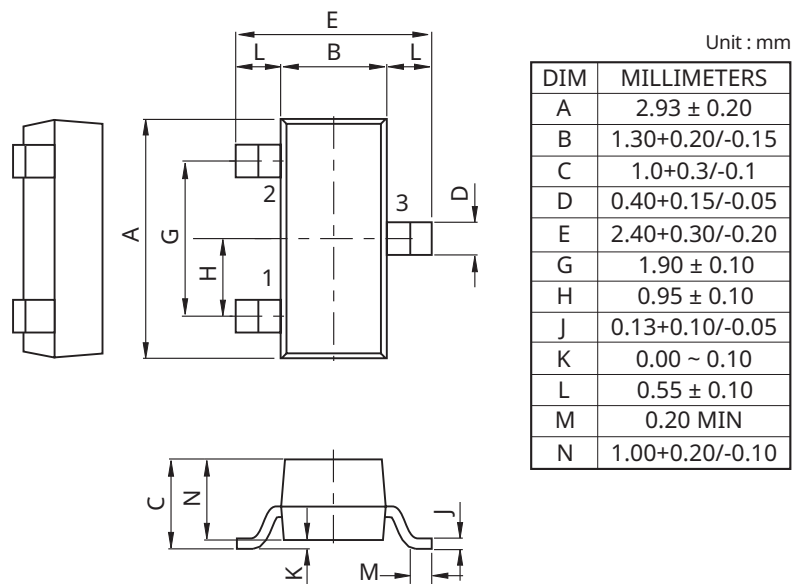
Fig14. Source - Drain Diode Reverse Recovery and dv /dt



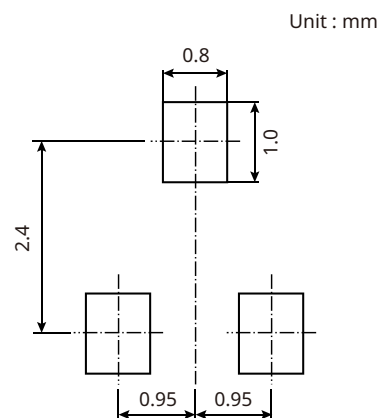
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PACKAGE INFORMATION(SOT-23)



RECOMMENDED PAD DIMENSION



PRECAUTION ON USING KEC PRODUCTS

1. The products described in this data are intended to be used in general-purpose electronic equipment.
(Office equipment, telecommunication equipment, measuring equipment, home appliances)
2. When you intend to use these products with equipment or device which require an extremely high of reliability and special applications (such as automobile, air travel aerospace, transportation equipment, life support, system and safety devices) in which special quality and reliability and the failure or malfunction of products may directly jeopardize or harm the human body or damage to property and any application other than the standard application intended, please be sure to consult with our sales representative in advance.
3. On designing your application, please use product within the ranges guaranteed by KEC for maximum rating, operating supply voltage range, heat radiation characteristics and other characteristics. User shall be responsible for failure or damage when used beyond the guaranteed ranges.
4. The technical information described in this data is limited to showing representative characteristics and applied circuit examples of the products and it does not constitute the warranting of industrial property, the granting of relative rights, or the granting of any license.
5. What are described in the data may be changed without any prior notice to reflect new technical development. Please confirm that you have received the latest product standards or specification before final design, purchase or use.
6. Although KEC is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors. Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. KEC shall have no responsibility for any damages arising out of the use of our Products beyond the rating specified by KEC.

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