

60V 1.4Ω SOT363 N-Channel MOSFET

Features

- Advanced Trench Process Technology
- Low On-Resistance
- Low Gate Charge
- ESD Protected
- SOT-363 2.1mmX2.3mmX1mm-6L Package

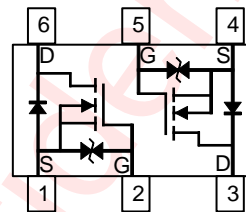
Applications

- Load Switch
- DC-to-DC convertors

General Description

Product Summary	
V_{DS}	60V
$R_{DS(ON)}$	1.2 Ω (Typ.) @10V
	1.4 Ω (Typ.) @4.5V
I_D	0.3A

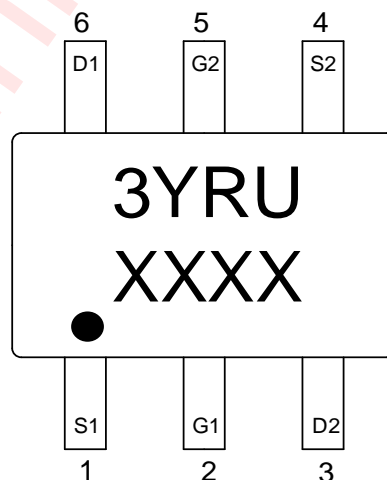
SOT-363



Top View

Pin Configuration and Top Mark

AW406004NSTR
(Top View)



3YRU-AW406004NSTR
XXXX-Production Tracing Code

Ordering Information

Part Number	Package	Marking	Moisture Sensitivity Level	Environmental Information	Delivery Form
AW406004NSTR	SOT363 2.1mmX 2.3mmX1mm-6L	3YRU	MSL3	RoHS + HF	3000 units/ Tape and Reel

Absolute Maximum Ratings ^(NOTE 1)

T_A= 25°C unless otherwise noted.

Symbol	Parameter	Maximum	Unit
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current(DC) ^(NOTE 2, 5)	T _A = 25°C 0.3	A
I _{DM}	Drain Current(Pulse) ^(NOTE 3)	1	A
P _D	Power Dissipation ^(NOTE2)	T _A = 25°C 0.25	W
T _J	Maximum Operating Junction Temperature	150	°C
T _{STG}	Storage Temperature	-55 ~ 150	°C
V _{ESD}	Human Body Model ^(NOTE 6)	±2	kV

Thermal Information

Symbol	Parameter	Condition	Value	Unit
R _{θJA}	Maximum Junction to Ambient ^(NOTE 2, 4)	Steady-State	485	°C/W

NOTE1: Conditions out of those ranges listed in "absolute maximum ratings" may cause permanent damages to the device. In spite of the limits above, functional operation conditions of the device should within the ranges listed in "recommended operating conditions". Exposure to absolute-maximum-rated conditions for prolonged periods may affect device reliability.

NOTE2: Mounted on 1inch² FR-4 board with minimum recommended pad size, 1oz. Copper.

NOTE3: Pulse Width ≤ 10μs, duty cycle ≤ 1%.

NOTE4: Thermal resistance from junction to ambient is highly dependent on PCB layout.

NOTE5: Rated according to R_{θJA}.

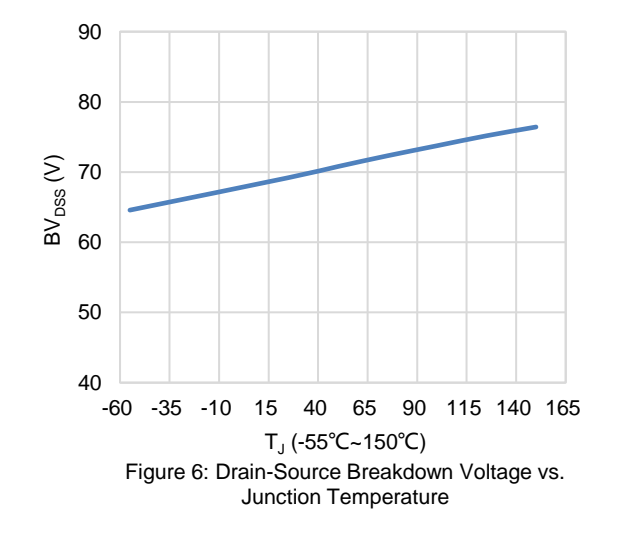
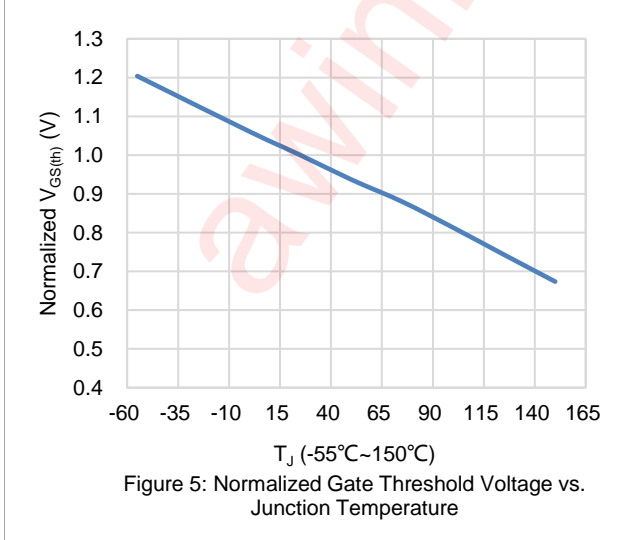
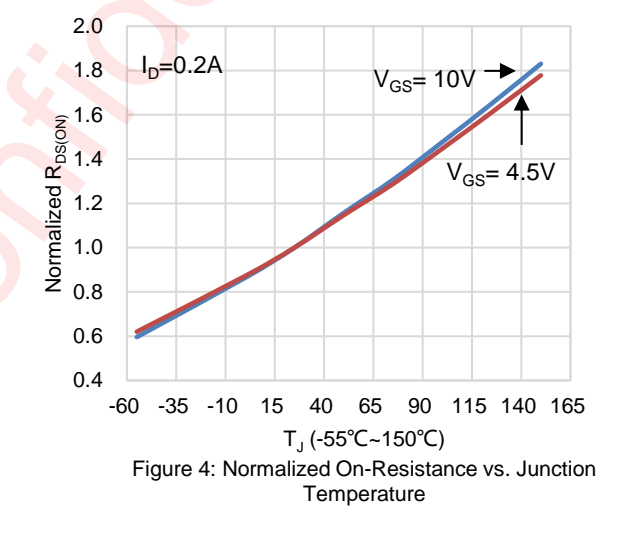
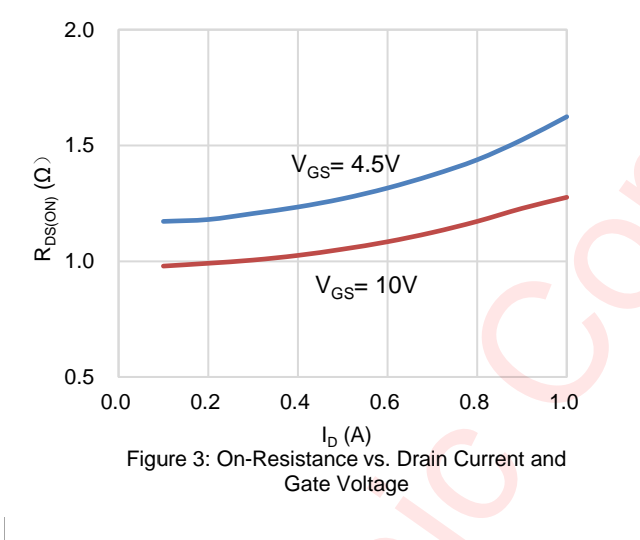
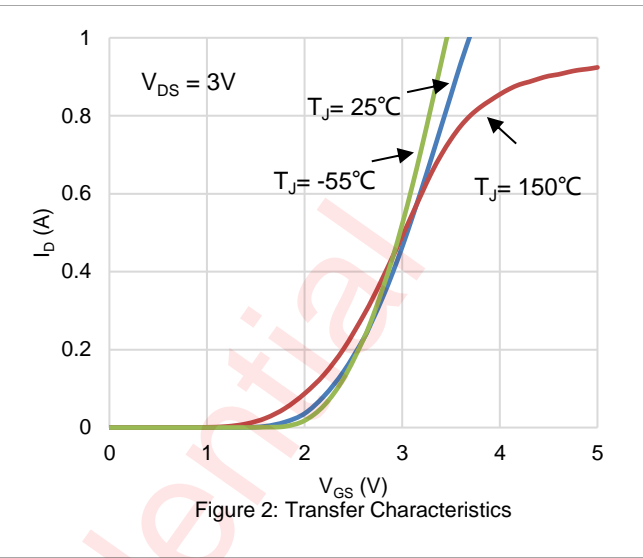
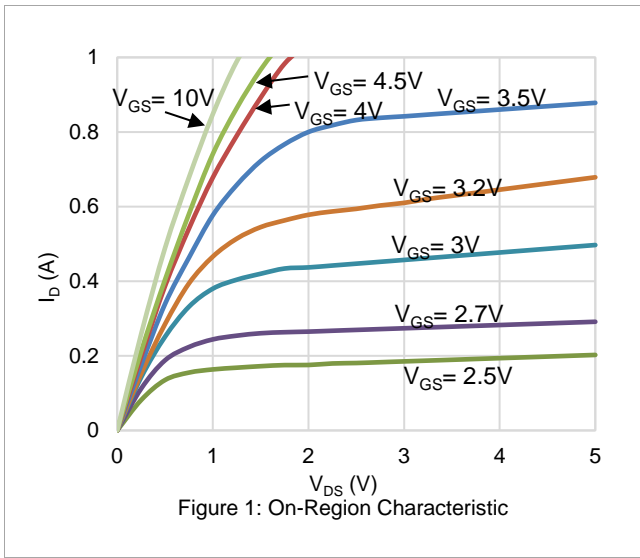
NOTE6: HBM Standards: ESDA/JEDEC JS-001-2017.

Electrical Characteristics

T_J= 25°C for typical values (unless otherwise noted).

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D = 250μA, V _{GS} = 0V	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} = 0V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{DS} = 0V, V _{GS} = ±20V	-	-	±5	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	1	-	2.5	V
R _{DS(ON)}	Static Drain to Source On-Resistance	V _{GS} = 10V, I _D = 0.3A	-	1.2	2.5	Ω
		V _{GS} = 4.5V, I _D = 0.2A	-	1.4	3	Ω
V _{SD}	Diode Forward Voltage	I _S = 1A, V _{GS} = 0V	-	-	1.2	V
DYNAMIC PARAMETERS						
R _g	Gate Resistance	f= 1MHz	-	100	-	Ω
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 30V, f= 1MHz	-	24	-	pF
C _{oss}	Output Capacitance		-	4.8	-	pF
C _{rss}	Reverse Transfer Capacitance		-	2.5	-	pF
SWITCHING PARAMETERS						
Q _g	Total Gate Charge	V _{GS} = 10V, V _{DS} = 30V, I _D = 0.3A	-	1.17	-	nC
Q _{gs}	Gate Source Charge		-	0.21	-	nC
Q _{gd}	Gate Drain Charge		-	0.17	-	nC
t _{d(on)}	Turn-On Delay Time	V _{DD} = 30V, R _g = 3Ω, V _{GS} = 10V, R _L =100Ω	-	3.5	-	ns
t _r	Turn-On Rise Time		-	2.5	-	ns
t _{d(off)}	Turn-Off Delay Time		-	14	-	ns
t _f	Turn-Off Fall Time		-	8	-	ns

Typical Electrical and Thermal Characteristics



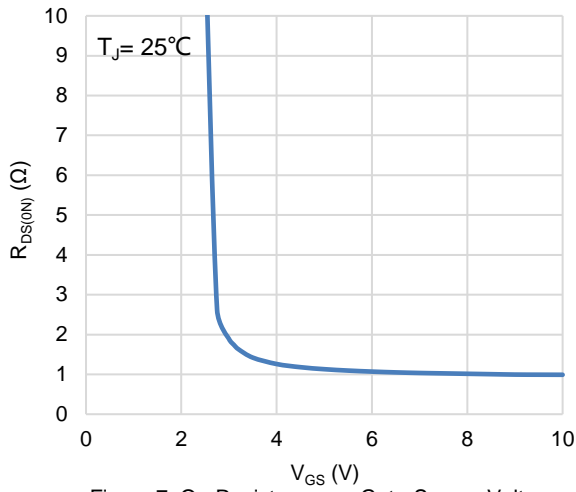


Figure 7: On-Resistance vs. Gate-Source Voltage

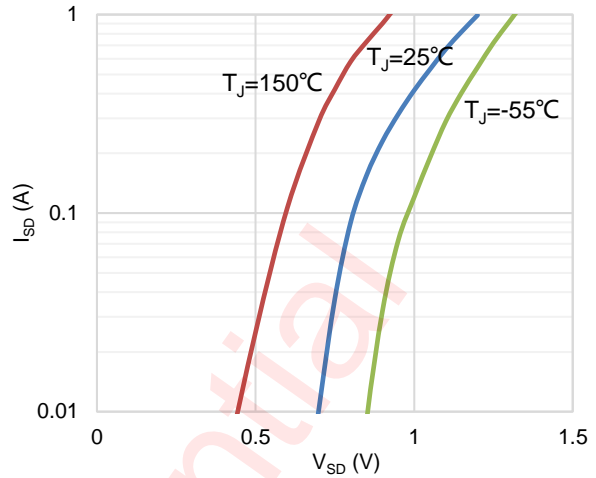


Figure 8: Forward Source to Drain Characteristics

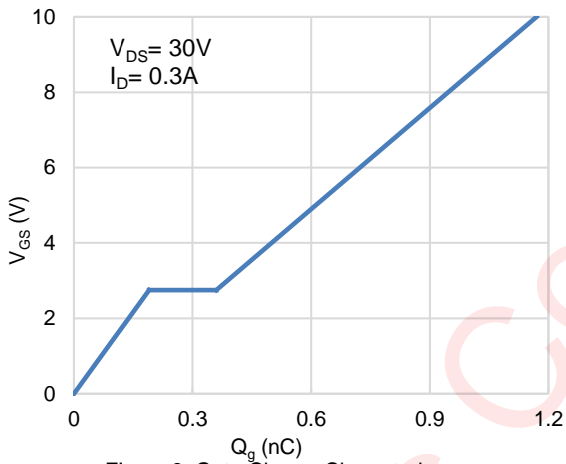


Figure 9: Gate-Charge Characteristic

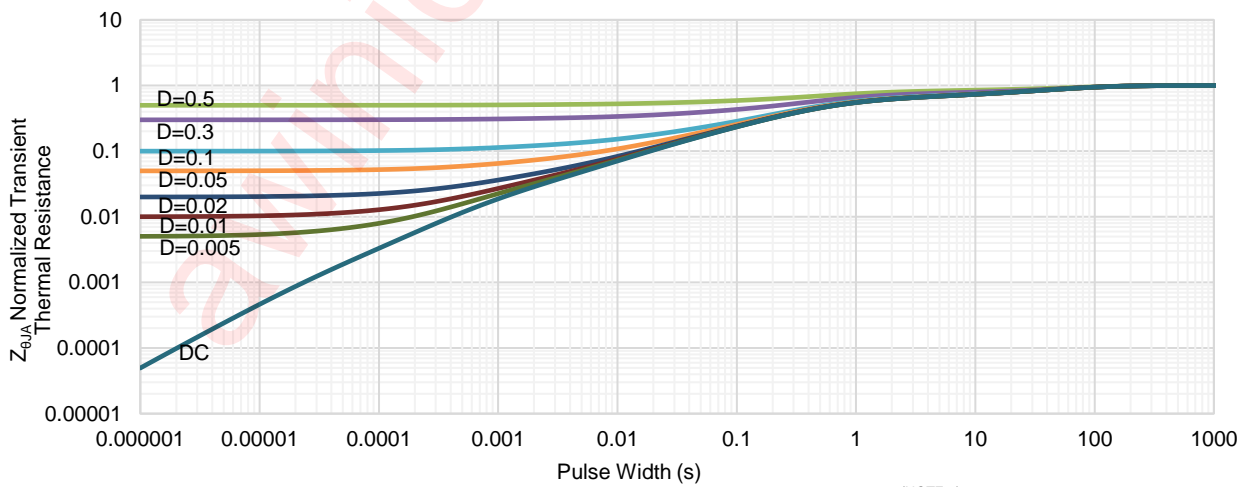
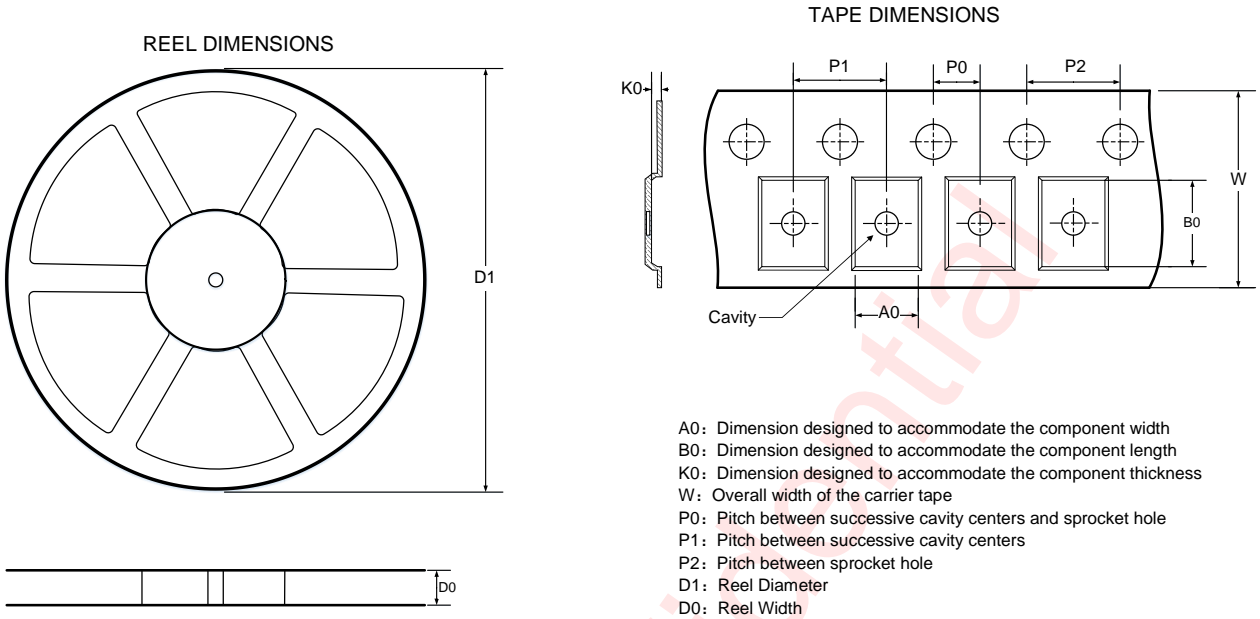
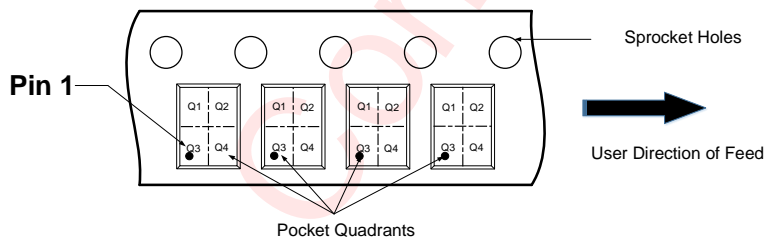


Figure 10: Normalized Maximum Transient Thermal Impedance (NOTE 1)

Tape and Reel Information



QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



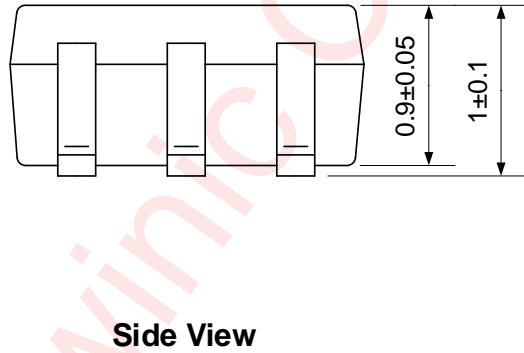
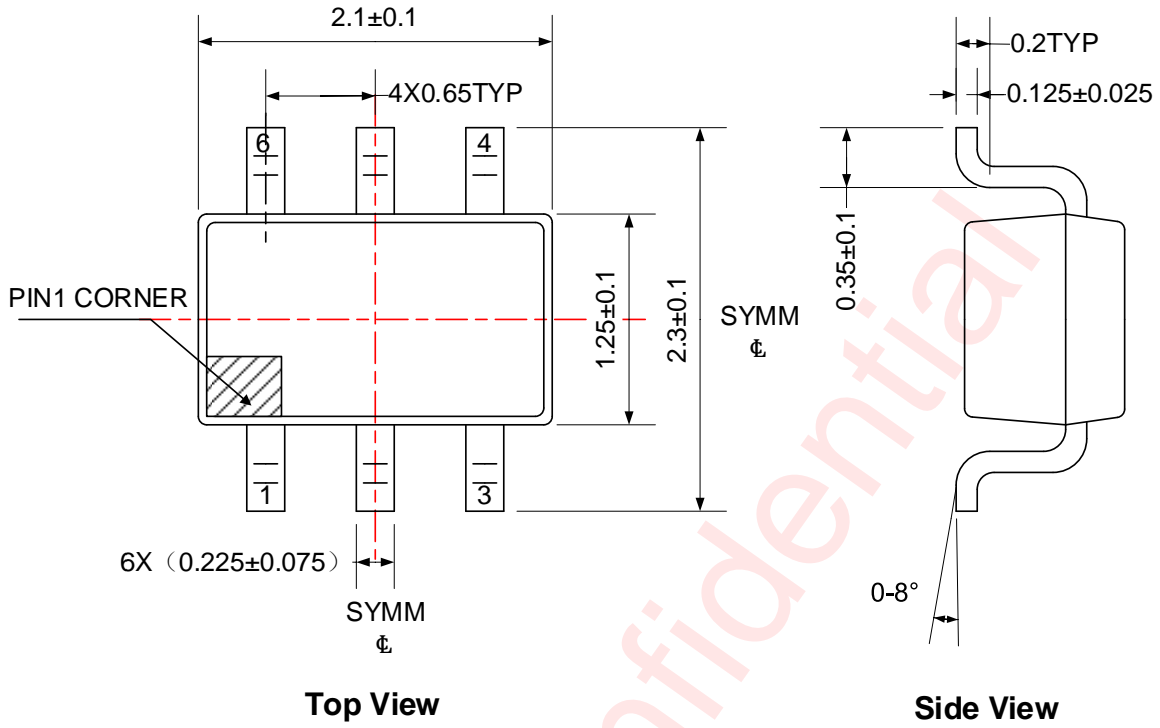
Note: The above picture is for reference only. Please refer to the value in the table below for the actual size

DIMENSIONS AND PIN1 ORIENTATION

D1 (mm)	D0 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
178	8.4	2.4	2.55	1.2	2	4	4	8	Q3

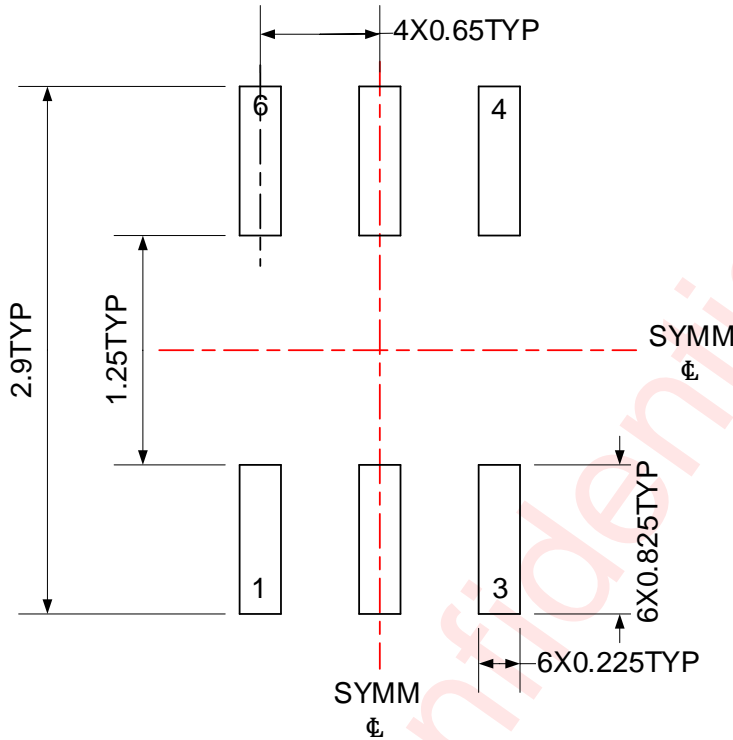
All dimensions are nominal

Package Description

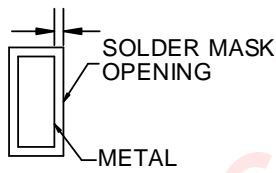


Unit: mm

Land Pattern Data

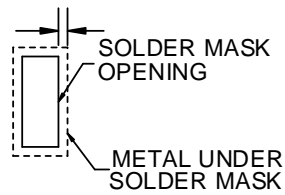


0.05 MAX
All AROUND



NON SOLDER MASK DEFINED

0.05 MIN
All AROUND



SOLDER MASK DEFINED

Unit: mm

Revision History

Version	Date	Change Record
V1.0	Sep.2022	Official Released

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