

VDS	RDS(on)	ID@25℃
650V	30mΩ	55A

Applications:

- Solar Inverters
- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- EV Charging
- Motor Drives

Features:

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitances
- Easy to Parallel and Simple to Drive
- Avalanche Ruggedness

Benefits:

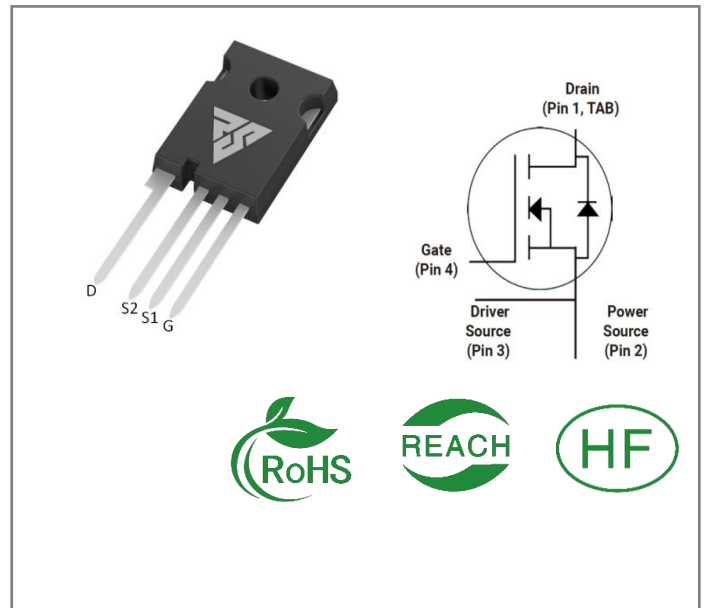
- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSM065030Z	TO-247-4	RSM065030Z	Tube	30 PCS

Maximum Ratings (TJ= 25℃ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
VDSmax	Drain - Source Voltage	650	V	VGS=0V, ID =100μA	
VGSmax	Gate - Source Voltage	-8/+22	V	Absolute maximum values	
VGSop	Gate - Source Voltage	-5/+18	V	Recommended operational values	
ID	Continuous Drain Current	55 39	A	VGS=18V, TC =25℃ VGS=18V, TC =100℃	
ID(pulse)	Pulsed Drain Current	197	A	Pulse width tp limited by TJmax	
PD	Power Dissipation	187	W	TC =25℃, TJ =175℃	
TL	Solder Temperature	260	℃		
TJ, Tstg	Operating Junction and Storage Temperature	-40 to +175	℃		



Electrical Characteristics (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
V(BR)DSS	Drain-Source Breakdown Voltage	650			V	V _{GS} =0V, I _D =100μA	
V _{GS(th)}	Gate Threshold Voltage	1.8	2.6	4.0	V	V _{GS} = V _{DS} , I _{DS} =5mA, T _C =25°C	
			1.8		V	V _{GS} = V _{DS} , I _{DS} =5mA, T _C =175°C	
I _{DSS}	Zero Gate Voltage Drain Current		1	50	μA	V _{DS} = 650V, V _{GS} =0V	
I _{GSS}	Gate-Source Leakage Current		10	250	nA	V _{GS} =22V, V _{DS} = 0V	
R _{DS(on)}	Drain-Source on-state Resistance		30	50	mΩ	V _{GS} =18V, I _D =25A, T _C =25°C	
			42			V _{GS} =18V, I _D =25A, T _C =175°C	
C _{iss}	Input Capacitance		1850		pF	V _{GS} =0V, V _{DS} =400 V, f=1MHz, V _{AC} =25 mV	
C _{oss}	Output Capacitance		160				
C _{rss}	Reverse Transfer Capacitance		15				
E _{ON}	Turn-On Switching Energy		50		μJ	V _{DS} =400V, V _{GS} =-5/18V, I _D = 25A, R _{G(ext)} = 2.5Ω, L= 100μH	
E _{OFF}	Turn-Off Energy		65				
t _{d(on)}	Turn-On Delay Time		14		ns	V _{DS} =400V, V _{GS} =-5/18 V, I _D = 25A, R _{G(ext)} =2.5 Ω , R _L =16Ω	
t _r	Rise Time		15				
t _{d(off)}	Turn-Off Delay Time		28				
t _f	Fall Time		8				
R _{G(int)}	Internal Gate Resistance		3		Ω	f=1 MHz, V _{AC} =25mV	
Q _{gs}	Gate to Source Charge		30		nC	V _{DS} =400V, V _{GS} =-5/18V, I _D = 5A	
Q _{gd}	Gate to Drain Charge		32		nC		
Q _g	Total Gate Charge		110				

Reverse Diode Characteristics (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Typ.	Max	Unit	Test Conditions	Note
VSD	Diode Forward Voltage	4.2		V	V _{GS} =-5V, I _{SD} = 12.5 A, T _J = 25°C	
		3.8		V	V _{GS} =-5V, I _{SD} =12.5 A, T _J = 175°C	
I _S	Continuous Diode Forward Current		45	A	V _{GS} =-5V, T _C = 25°C	
t _{rr}	Reverse Recovery time	25		ns	I _{SD} = 25 A, V _R = 400V	
Q _{rr}	Reverse Recovery Charge	100		nC		
I _{rrm}	Peak Reverse Recovery Current	5		A		

Thermal Characteristics (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Typ.	Unit	Test Conditions	Note
R _{θJC}	Thermal Resistance from Junction to Case	0.8	°C/W		
R _{θJA}	Thermal Resistance From Junction to Ambient	40			

Typical Feature Curve

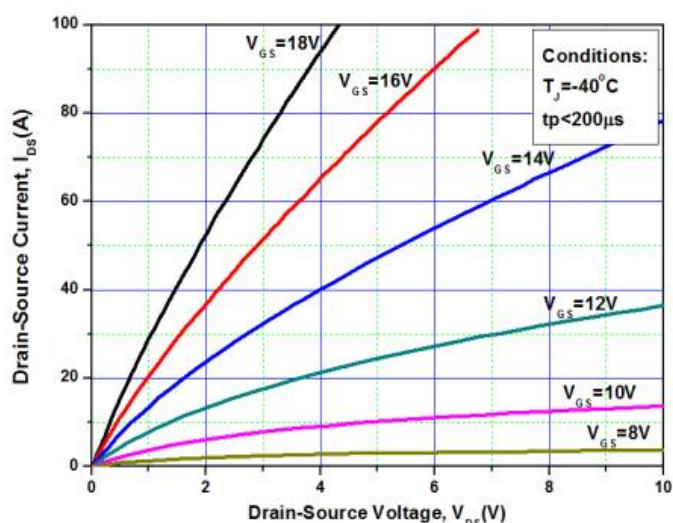


Figure 1. Output Characteristics T_J = -40°C

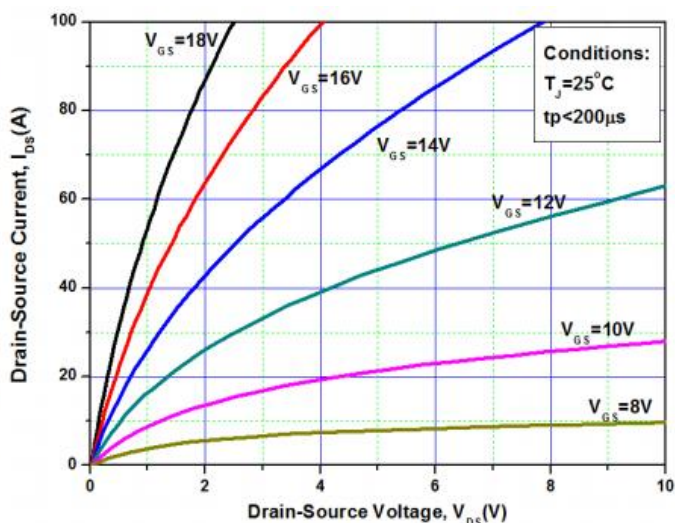


Figure 2. Output Characteristics T_J = 25°C

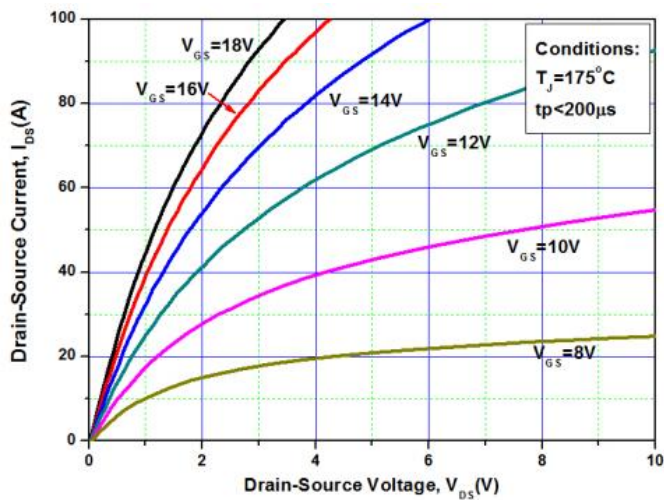


Figure 3. Output Characteristics $T_j = 175^\circ\text{C}$

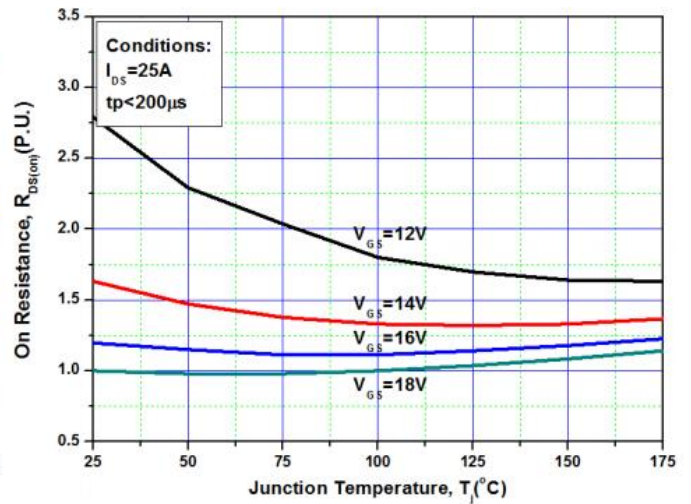


Figure 4. Normalized On-Resistance vs. Temperature

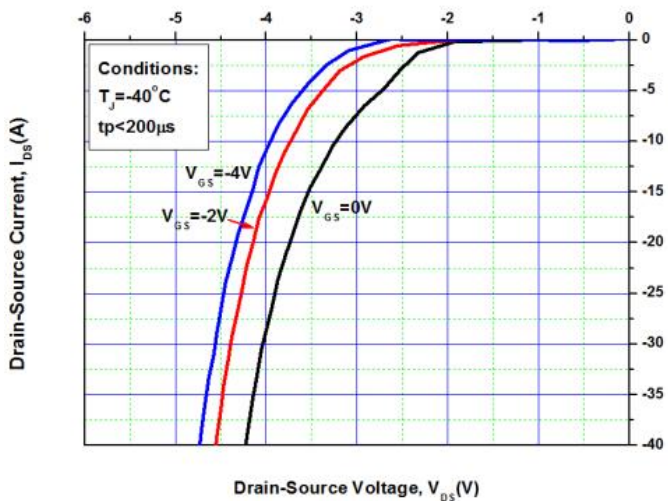


Figure 5. Body Diode Characteristic at -40°C

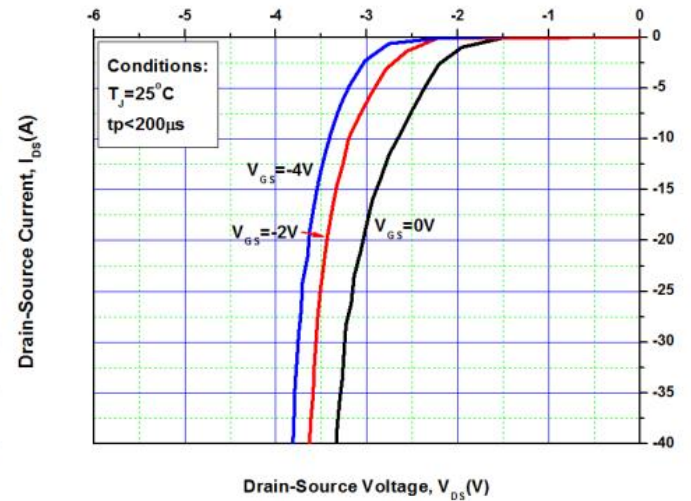


Figure 6. Body Diode Characteristic at 25°C

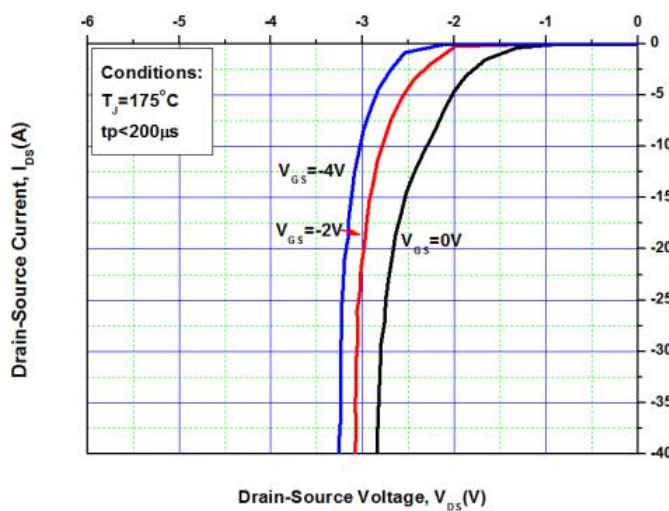


Figure 7. Body Diode Characteristic at 175°C

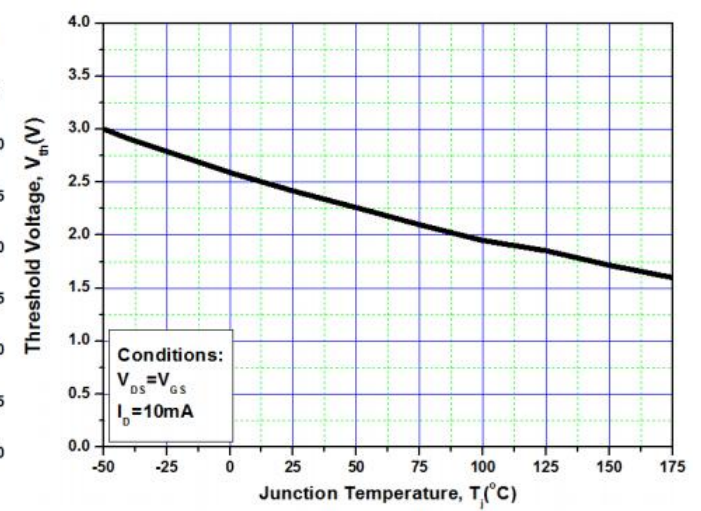


Figure 8. Threshold Voltage vs. Temperature

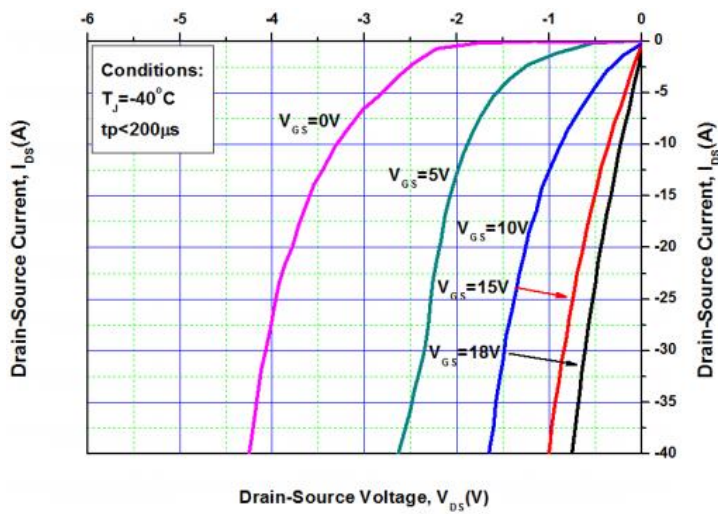


Figure 9. 3rd Quadrant Characteristic at -40°C

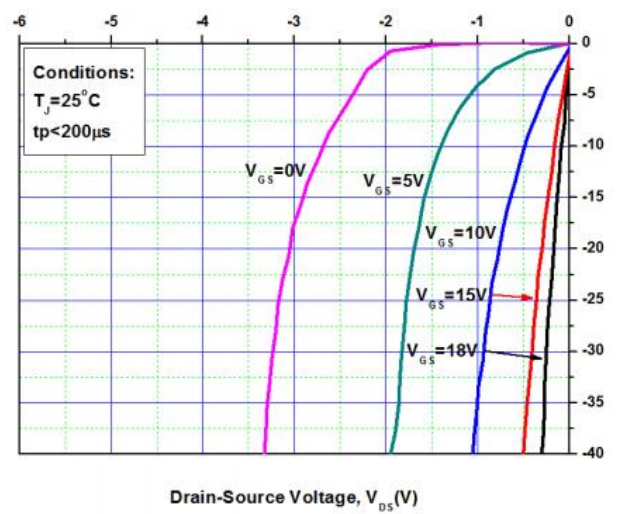


Figure 10. 3rd Quadrant Characteristic at 25°C

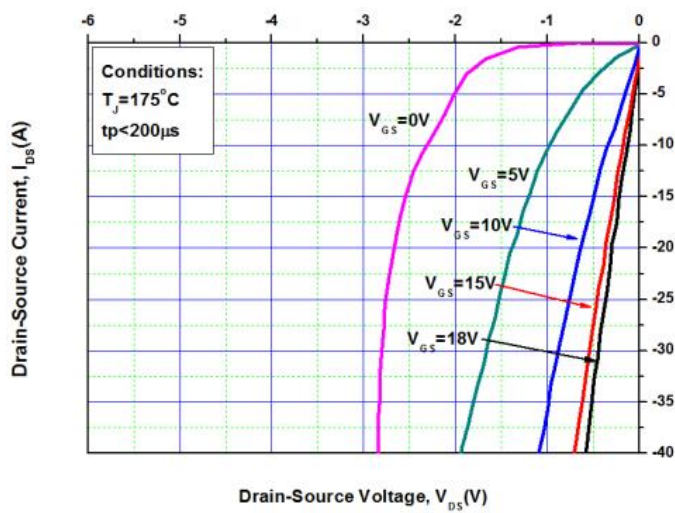


Figure 11. 3rd Quadrant Characteristic at 175°C

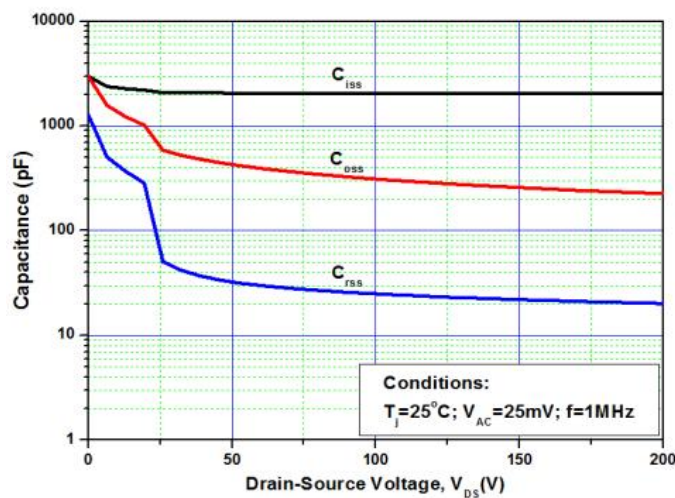


Figure 12. Capacitances vs. Drain-Source Voltage (0 - 200V)

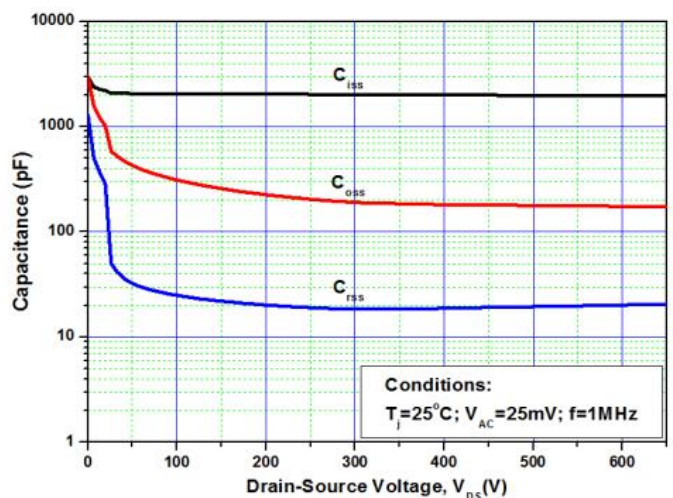
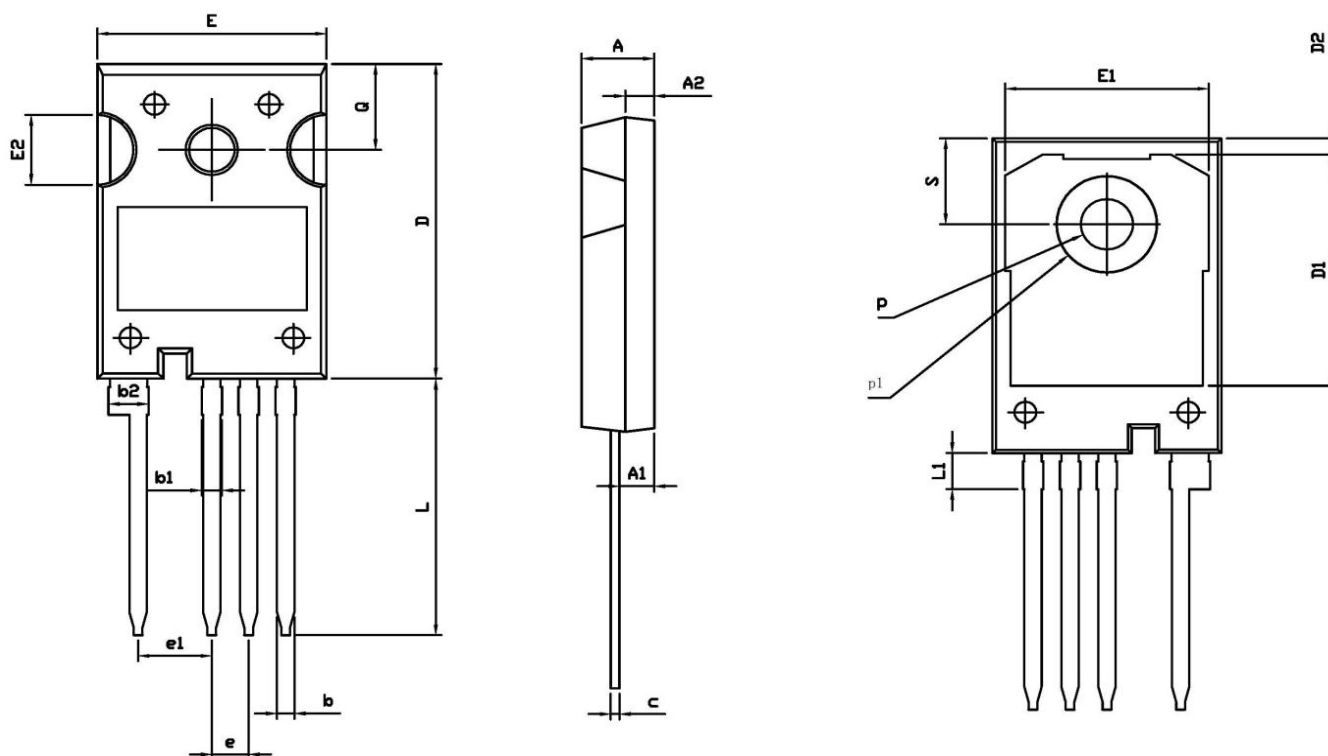
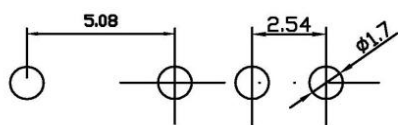


Figure 13. Capacitances vs. Drain-Source Voltage (0 - 650V)

Package outline drawing(TO-247-4 Unit: mm)



RECOMMENDED LAND PATTERN



UNIT: mm

	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.25	2.40	2.45
A2	1.85	2.00	2.15
b	1.05	1.20	1.35
b1	1.00	1.30	1.60
b2	2.35	2.65	2.95
c	0.50	0.60	0.70
D	22.34	22.54	22.74
D1	16.00	16.50	17.00
D2	0.97	1.17	1.37
e	2.34	2.54	2.74
e1	4.88	5.08	5.28
E	15.60	15.80	16.00
E1	13.50	14.00	14.50
E2	4.80	5.00	5.20
L	18.08	18.38	18.68
L1	2.38	2.58	2.78
p	3.50	3.60	3.70
p1	6.60	6.80	7.00
Q	6.00	6.15	6.30
S	6.00	6.15	6.30

Disclaimers:

Reasunos Semiconductor Technology Co.Ltd (Reasunos) reserves the right to make changes without notice in order to improve reliability,function or design and to discontinue any product or service without notice .Customers should obtain the latest relevant information before orders and should verify that such information in current and complete.All products are sold subject to Reasunos's terms and conditions supplied at the time of orderacknowledgement.

Reasunos Semiconductor Technology Co.Ltd warrants performance of its hardware products to the specifications at the time of sale.Testing,reliability and quality control are used to the extene Reasunos deems necessary to support this warrantee. Except where agreed upon by contr- actual agreement,testing of all parameters of each product is not necessarily performed.

Reasunos Semiconductor Technology Co.Ltd does not assume any liability arising from the use of any product or circuit designs described herein.Customers are responsible for their products and applications using Reasunos's components.To minimize risk,customers must provide adequate design and operating safeguards.

Reasunos Semiconductor Technology Co.Ltd does not warrant or convey any license eith- er expressed or implied under its patent rights,nor the rights of others.Reproduction of inform- ation in Reasunos's data sheets or data books is permissible only if reproduction is without modification oralteration.Reproduction of this information with any alteration is an unfair and deceptive business practice. Reasunos Semiconductor Technology Co.Ltd is not responsi- ble or liable for such altered documentation.

Resale of Reasunos's products with statements different from or beyond the parameters stated by Reasunos Semiconductor Technology Co.Ltd for that product or service voids all exp- ress or implied warranties for the associated Reasunos's product or service and is unfair and deceptive business practice. Reasunos Semiconductor Technology Co.Ltd is not responsi- ble or liable for such statements.

Life Support Policy:

Reasunos Semiconductor Technology Co.Ltd's Products are not authorized for use as cri- tical components in life support devices or systems without the expressed written approval of Reasunos Semiconductor Technology Co.Ltd.

As used herein:

1. Life support devices or systems are devices or systems which: a.are intended for surgical implant into the human body, b.support or sustain life, c.whose failuer to when properly used in accordance with instructions for used provided in the laeling,can be reasonably expected to result in significant injury to the user.

2.A critical component is any component of a life support device or system whose failure to system whose failure to perform can be reasonably expected to cause the failure of the life support device or system,or to affect its safety or effectiveness.