

VDS	RDS(on)	ID@25°C
1700V	1000mΩ	5A

Applications:

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

Features:

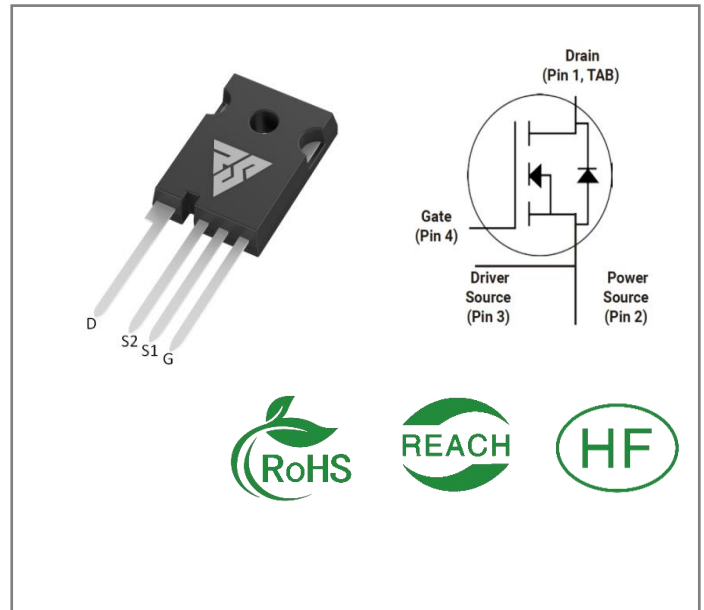
- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitances
- Easy to Parallel and Simple to Drive
- Avalanche Ruggedness

Benefits:

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

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSM1701K0Z	TO-247-4	RSM1701K0Z	Tube	30 PCS


Maximum Ratings (T_J= 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
VDSmax	Drain - Source Voltage	1700	V	VGS=0V, ID =100μA	
VGSmax	Gate - Source Voltage	-10/+2 5	V	Absolute maximum values	
VGSop	Gate - Source Voltage	-5/+20	V	Recommended operational values	
ID	Continuous Drain Current	5 3.5	A	VGS=20V, TC =25°C VGS=20V, TC =100°C	
ID(pulse)	Pulsed Drain Current	6	A	Pulse width tp limited by TJmax	
PD	Power Dissipation	69	W	TC =25°C, TJ =150°C	
TL	Solder Temperature	260	°C		
TJ, Tstg	Operating Junction and Storage Temperature	-55 to + 150	°C		

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	1700			V	V _{GS} =0V, I _D =100μA	
V _{GS(th)}	Gate Threshold Voltage	2.5	3.0	4.5	V	V _{GS} = V _D S, I _D S=1mA, TC =25°C	
			2.2		V	V _{GS} = V _D S, I _D S=1mA, TC =150°C	
I _{DSS}	Zero Gate Voltage Drain Current		1	100	μA	V _D S= 1700V, V _{GS} =0V	
I _{GSS}	Gate-Source Leakage Current			250	nA	V _{GS} =25V, V _D S= 0V	
R _{DS(on)}	Drain-Source on-state Resistance		1000	1300	mΩ	V _{GS} =20V, I _D =2A, TC =25°C	
			1500			V _{GS} =20V, I _D =2A, TC =150°C	
C _{iss}	Input Capacitance		186		pF	V _{GS} =0V, V _D S=1000 V, f=1MHz, V _{AC} =25 mV	
C _{oss}	Output Capacitance		12				
C _{rss}	Reverse Transfer Capacitance		1.6				
E _{ON}	Turn-On Switching Energy		48		μJ	V _D S =1200V, V _{GS} =-5/20V, I _D = 2A, R _{G(ext)} = 2.5Ω, L= 1500μH	
E _{OFF}	Turn-Off Energy		18				
t _{d(on)}	Turn-On Delay Time		5.2		ns	V _D S =1200V, V _{GS} =-5/20 V, I _D = 2A, R _{G(ext)} =2.5 Ω , R _L =600Ω	
t _r	Rise Time		9.4				
t _{d(off)}	Turn-Off Delay Time		13.2				
t _f	Fall Time		22				
R _{G(int)}	Internal Gate Resistance		22		Ω	f=1 MHz, V _{AC} =25mV	
Q _{gs}	Gate to Source Charge		5.2		nC	V _D S=1200V, V _{GS} =-5/20V, I _D =2A	
Q _{gd}	Gate to Drain Charge		7.3		nC		
Q _g	Total Gate Charge		21.8				

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	VGS=-5V, ISD = 1 A, T _J = 25°C	
		3.9		V	VGS=-5V, ISD= 1 A, T _J = 150°C	
IS	Continuous Diode Forward Current		4	A	VGS=-5V,TC= 25°C	
trr	Reverse Recovery time	25		ns	ISD= 2 A, VR = 1200V	
Qrr	Reverse Recovery Charge	15		nC		
Irrm	Peak Reverse Recovery Current	2.8		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	1.8	°C/W		
R _{θJA}	Thermal Resistance From Junction to Ambient	40			

Typical Feature Curve

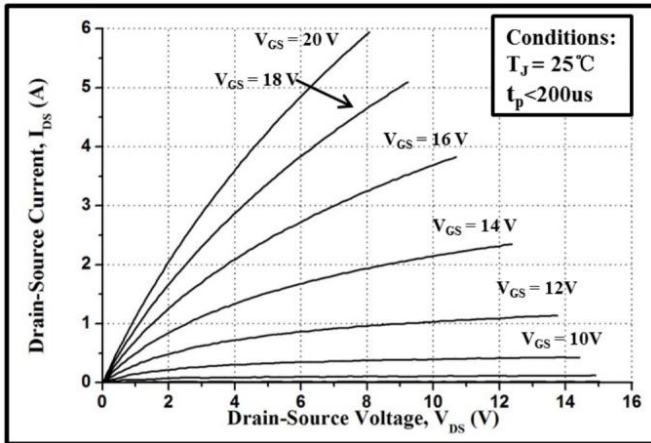


Figure 1. Typical Output Characteristics $T_J = 25^\circ\text{C}$

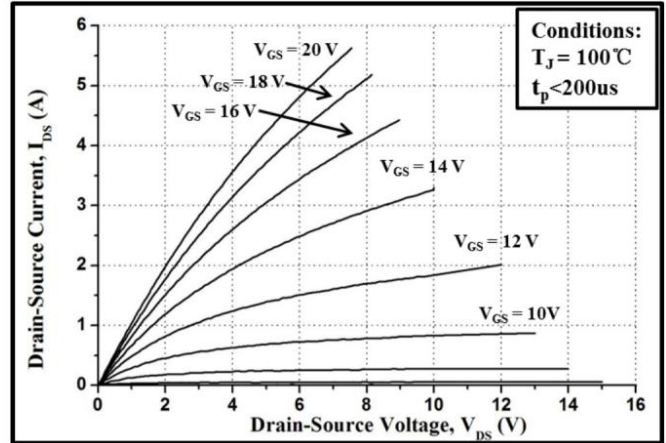


Figure 2. Typical Output Characteristics $T_J = 100^\circ\text{C}$

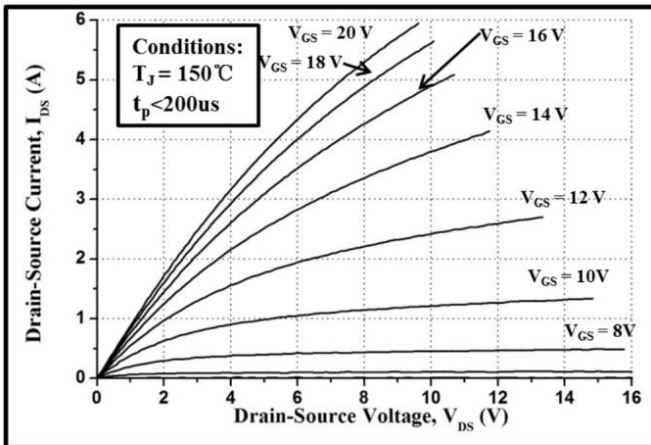


Figure 3. Typical Output Characteristics $T_J = 150^\circ\text{C}$

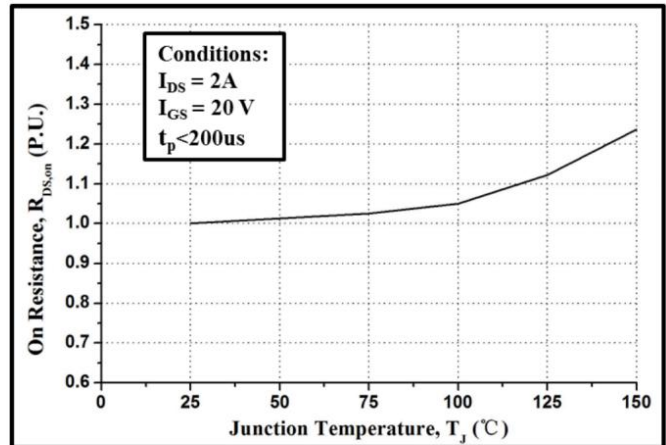


Figure 4. Normalized On-Resistance vs. Temperature

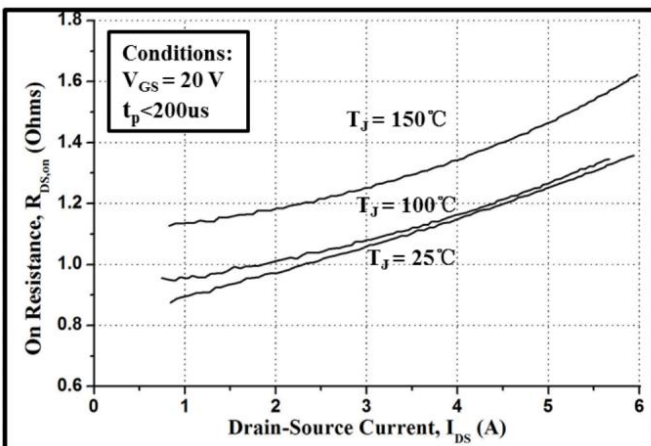


Figure 5. On-Resistance vs. Drain Current

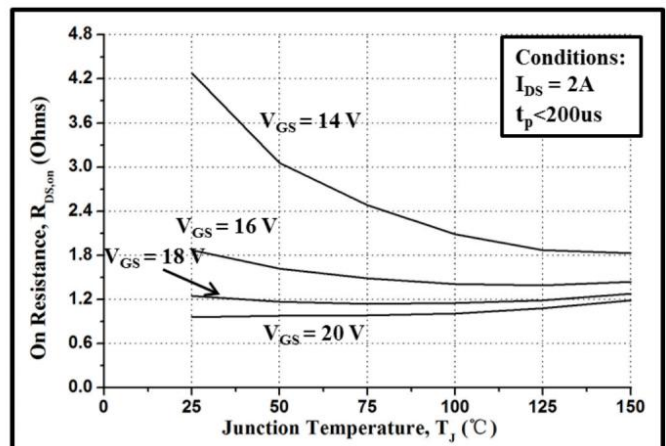


Figure 6. On-Resistance vs. Temperature

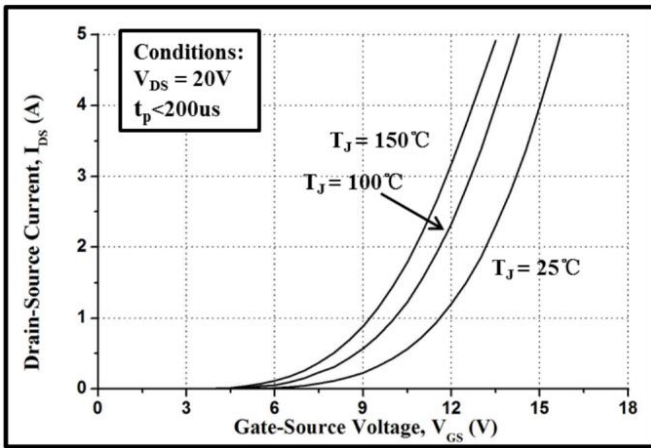


Figure 7. Typical Transfer Characteristics

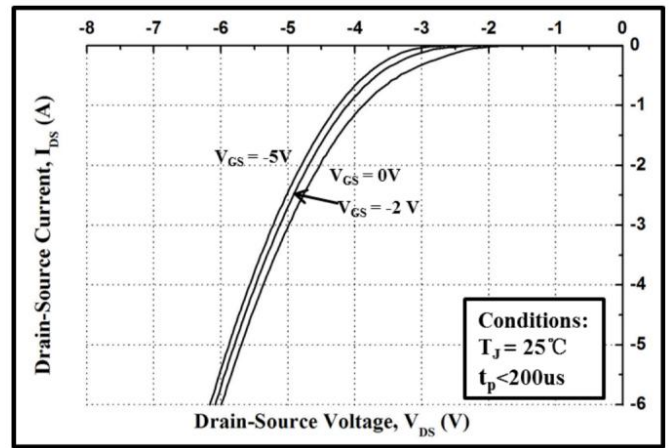


Figure 8. Body Diode Characteristics at 25°C

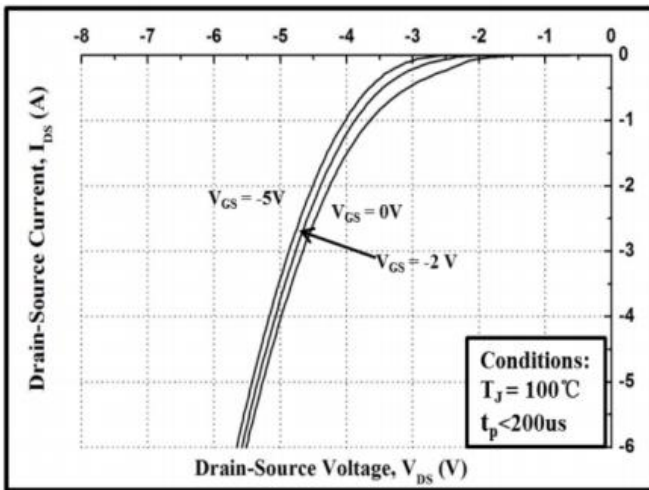


Figure 9. Body Diode Characteristics at 100°C

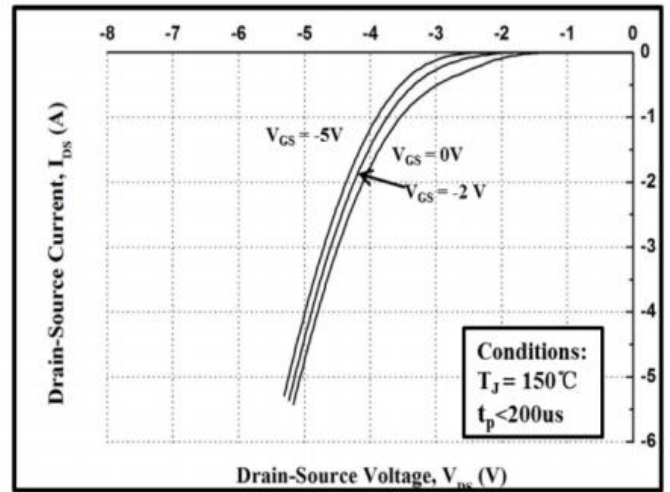


Figure 10. Body Diode Characteristics at 150°C

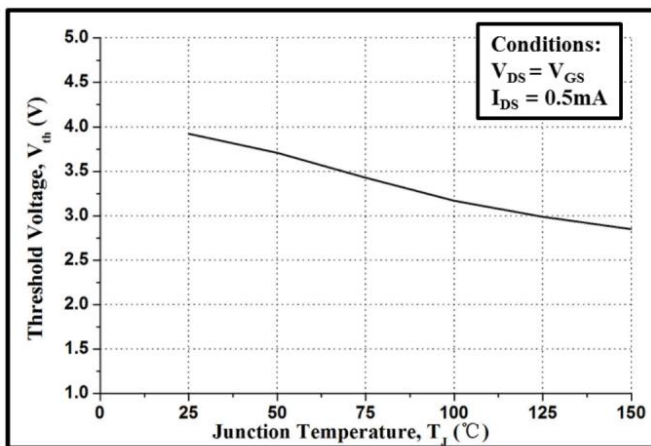


Figure 11. Gate Threshold Voltage vs. Temperature

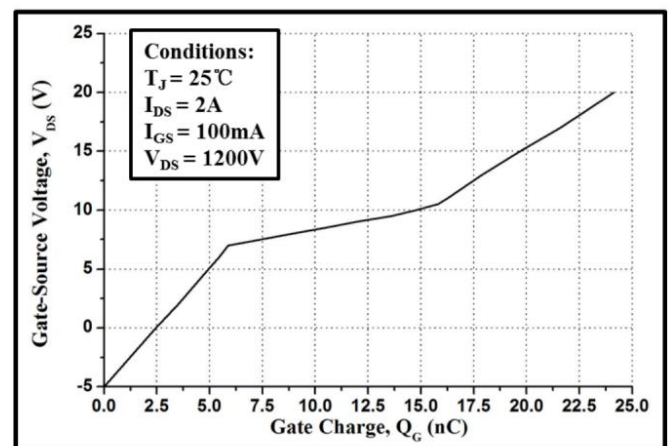


Figure 12. Gate Charge Characteristic

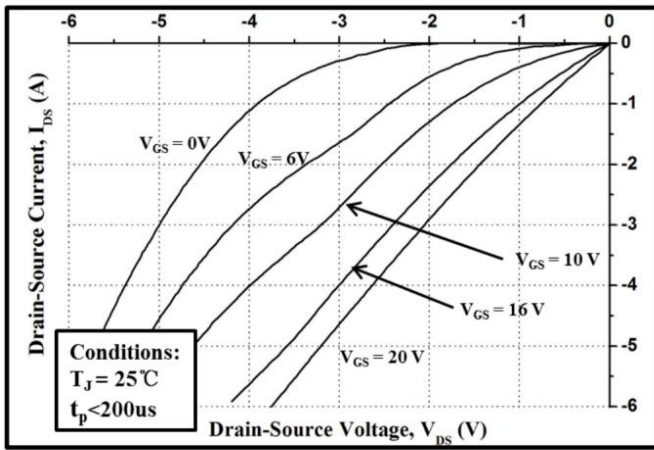


Figure 13. 3rd Quadrant Characteristics at 25°C

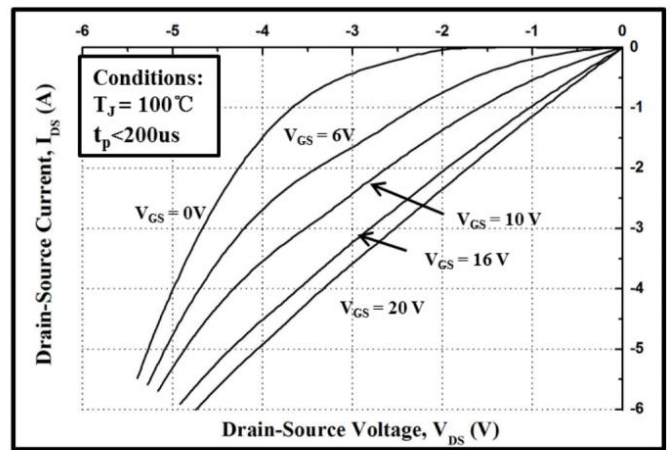


Figure 14. 3rd Quadrant Characteristics at 100°C

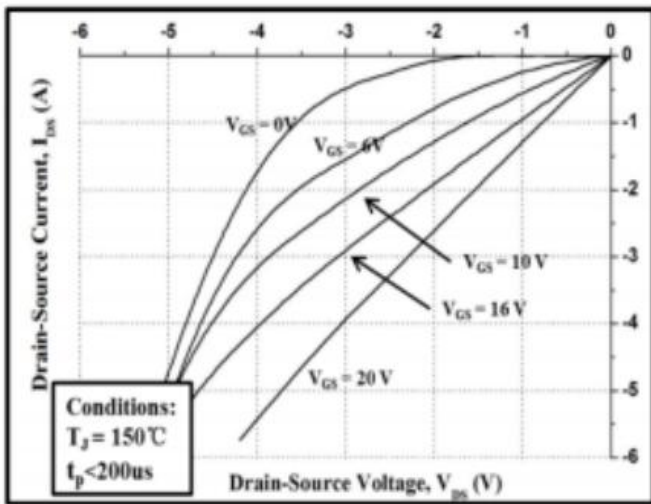


Figure 15. 3rd Quadrant Characteristics at 150°C

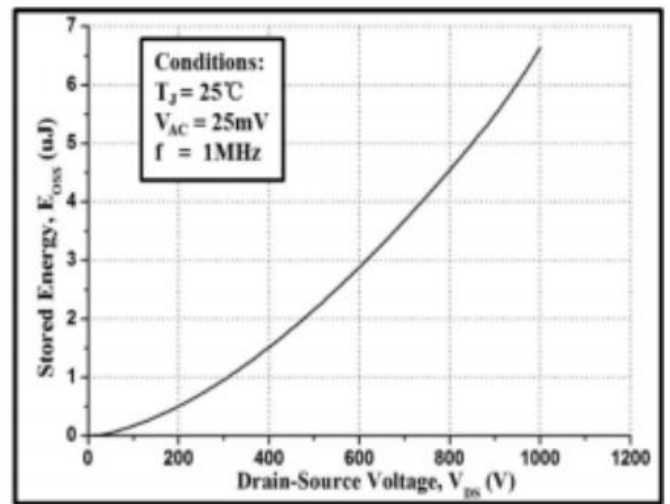


Figure 16. Output Capacitor Stored Energy

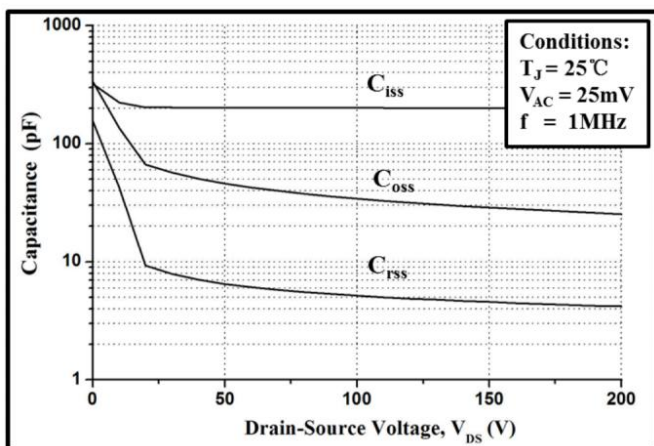


Figure 17. Capacitances vs. Drain-Source Voltage

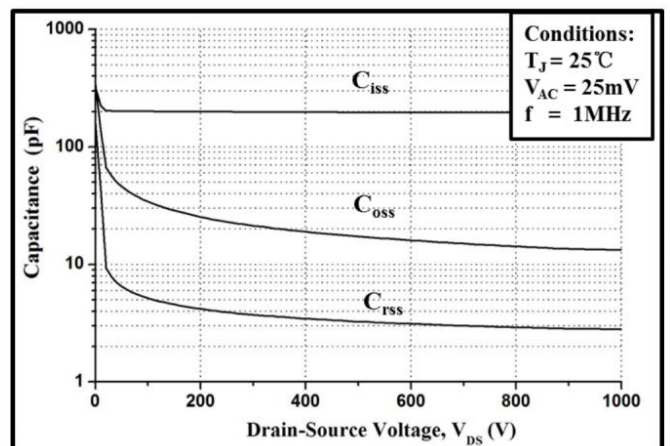
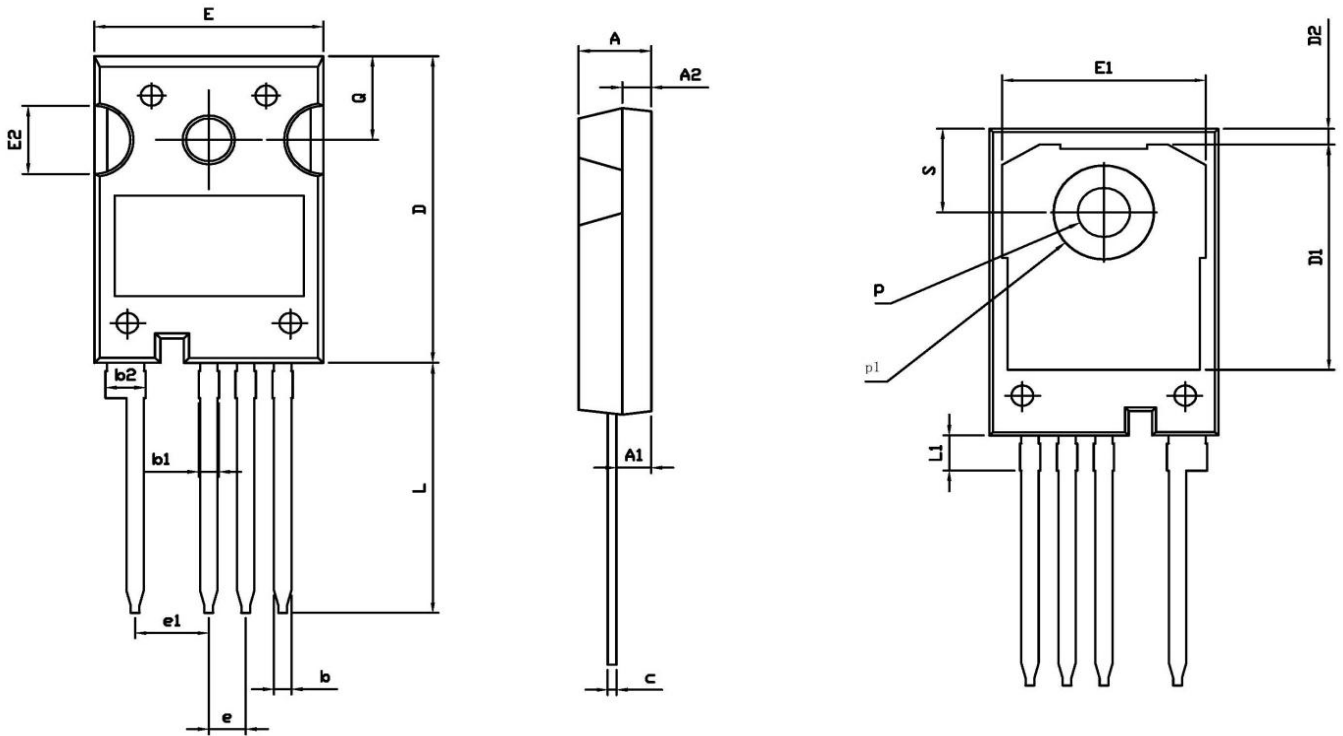
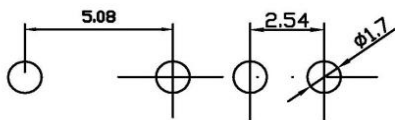


Figure 18. Capacitances vs. Drain-Source Voltage

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

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