

VDS	RDS(on)	ID@25°C
1200V	160mΩ	18A

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:

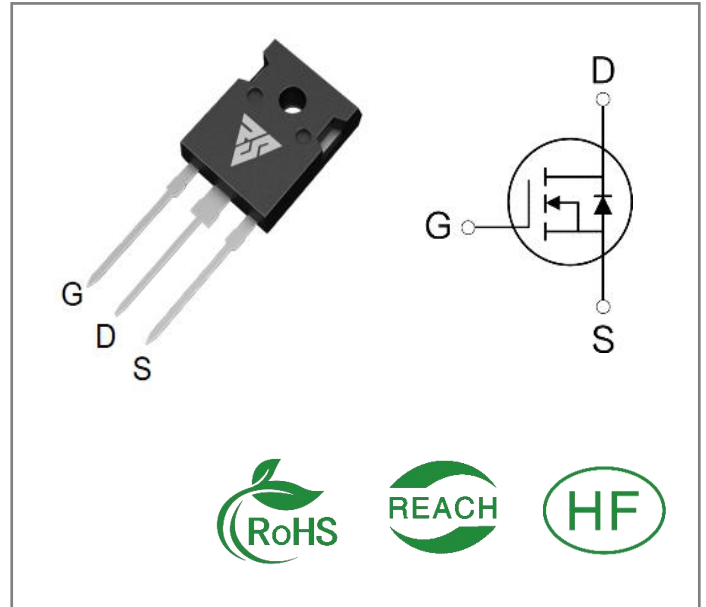
- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSM120160W	TO-247-3	RSM120160W	Tube	30 PCS

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

Symbol	Parameter	Value	Unit	Test Conditions	Note
VDSmax	Drain - Source Voltage	1200	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	18 12	A	VGS=20V, TC =25°C VGS=20V, TC =100°C	
ID(pulse)	Pulsed Drain Current	40	A	Pulse width tp limited by TJmax	
PD	Power Dissipation	125	W	TC =25°C, TJ =150°C	
TL	Solder Temperature	260	°C		
TJ, Tstg	Operating Junction and Storage Temperature	-40 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	1200			V	VGS=0V, ID =100μA	
VGS(th)	Gate Threshold Voltage	2.0	2.4	4.0	V	VGS= VDS, IDS=2.5mA, TC =25°C	
			1.8		V	VGS= VDS, IDS=2.5mA, TC =150°C	
IDSS	Zero Gate Voltage Drain Current		1	100	μA	VDS= 1200V, VGS=0V	
IGSS	Gate-Source Leakage Current		10	250	nA	VGS=25V, VDS= 0V	
RDS(on)	Drain-Source on-state Resistance		160	196	mΩ	VGS=20V, ID =10A, TC =25°C	
			280			VGS=20V, ID =10A, TC =150°C	
Ciss	Input Capacitance		890		pF	VGS=0V, VDS=1000 V, f=1MHz, VAC=25 mV	
Coss	Output Capacitance		54				
Crss	Reverse Transfer Capacitance		8.5				
EON	Turn-On Switching Energy		315		μJ	VDS =800V, VGS =-5/20V, ID = 10A, RG(ext) = 2.5Ω, L= 200μH	
EOFF	Turn-Off Energy		63				
td(on)	Turn-On Delay Time		8		ns	VDS =800V, VGS =-5/20 V ID = 10A, RG(ext) =2. 5 Ω , RL =80Ω	
tr	Rise Time		9				
td(off)	Turn-Off Delay Time		14				
tf	Fall Time		9				
RG(int)	Internal Gate Resistance		5.5		Ω	f=1 MHz, VAC=25mV	
Qgs	Gate to Source Charge		17		nC	VDS=800V, VGS=-5/20V ID =10A	
Qgd	Gate to Drain Charge		9		nC		
Qg	Total Gate Charge		49				

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 = 10 A, T _J = 25°C	
		3.9		V	VGS=-5V, ISD= 10 A, T _J = 150°C	
IS	Continuous Diode Forward Current		23	A	VGS=-5V, TC= 25°C	
trr	Reverse Recovery time	28		ns	ISD= 10 A, VR = 800V	
Qrr	Reverse Recovery Charge	50		nC		
Irrm	Peak Reverse Recovery Current	3		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	0.9	°C/W		
R _{θJA}	Thermal Resistance From Junction to Ambient	40			

Typical Feature Curve

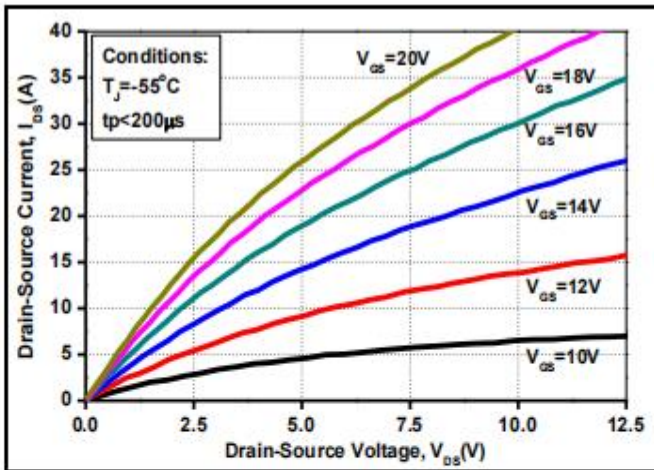


Figure 1. Output Characteristics $T_J = -55^\circ\text{C}$

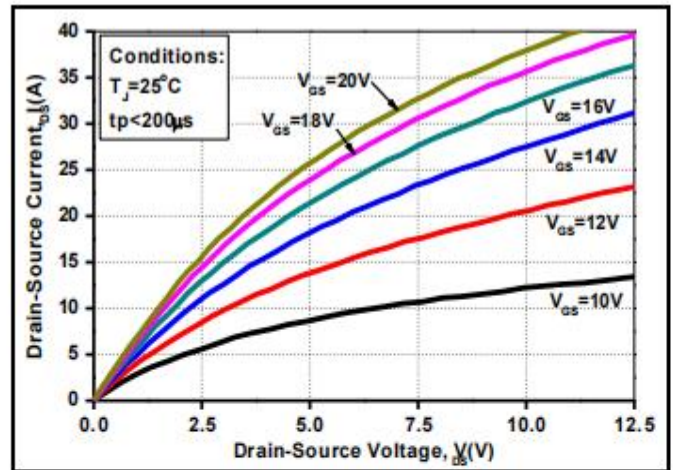


Figure 2. Output Characteristics $T_J = 25^\circ\text{C}$

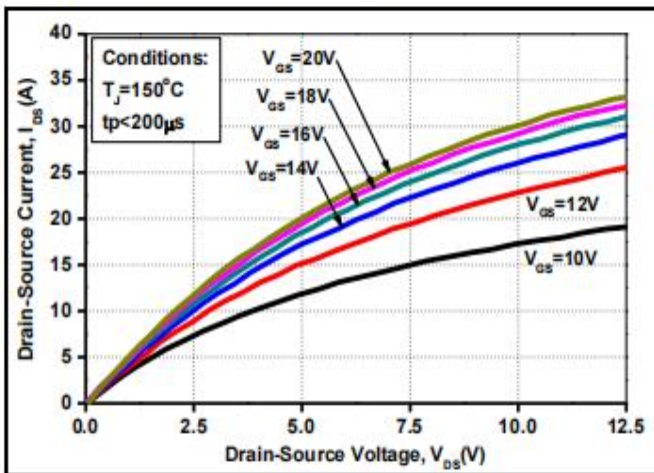


Figure 3. Output Characteristics $T_J = 150^\circ\text{C}$

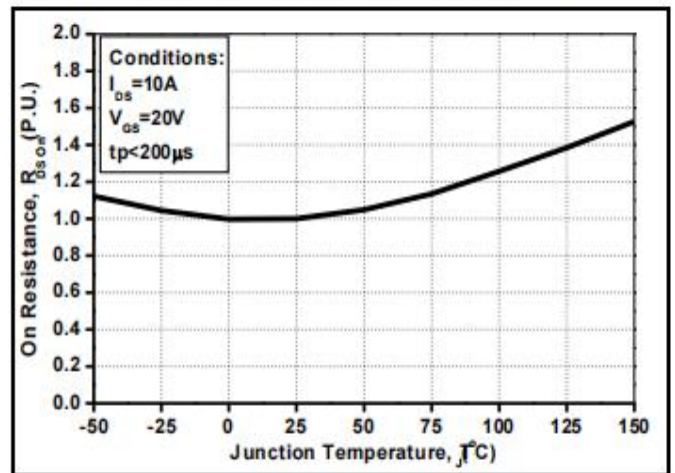


Figure 4. Normalized On-Resistance vs. Temperature

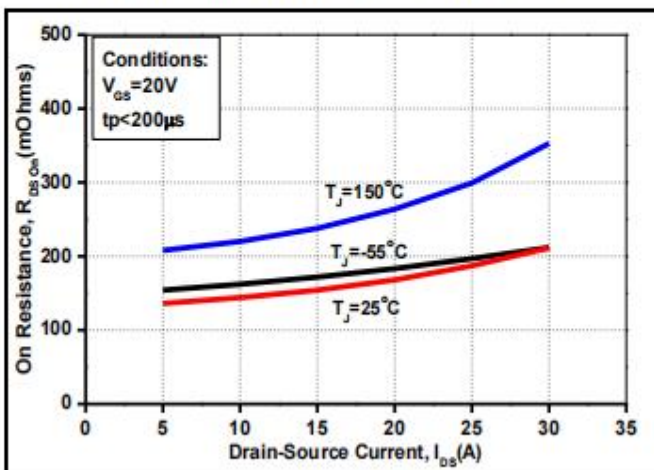


Figure 5. On-Resistance vs. Drain Current For Various Temperatures

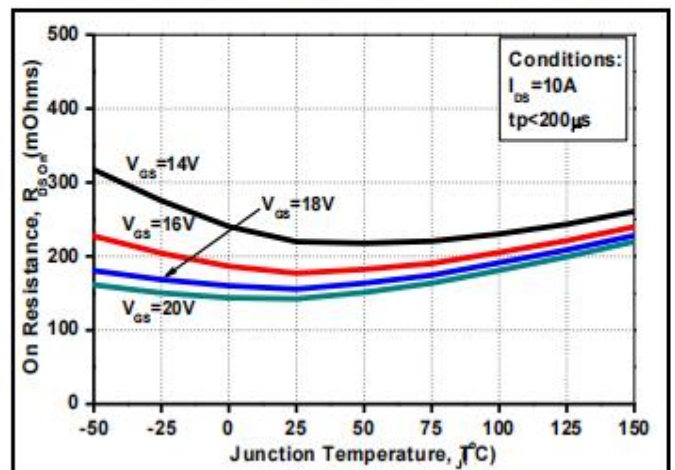


Figure 6. On-Resistance vs. Temperature For Various Gate Voltage

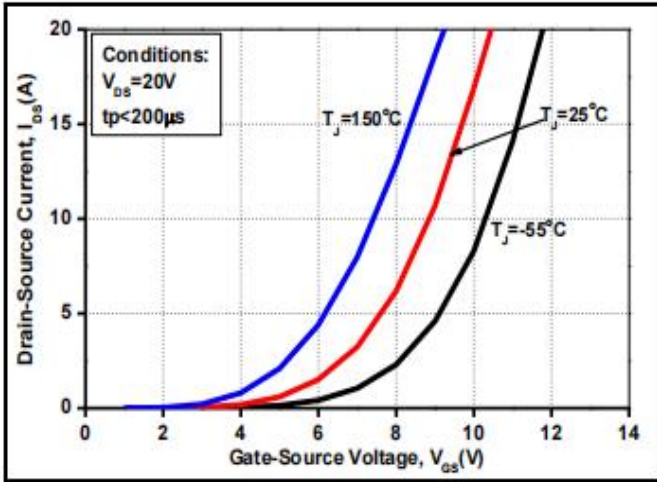


Figure 7. Transfer Characteristic for Various Junction Temperatures

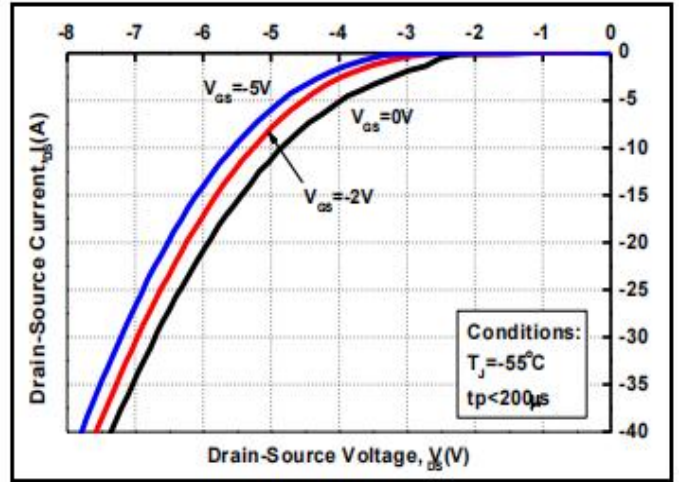


Figure 8. Body Diode Characteristic at -55 °C

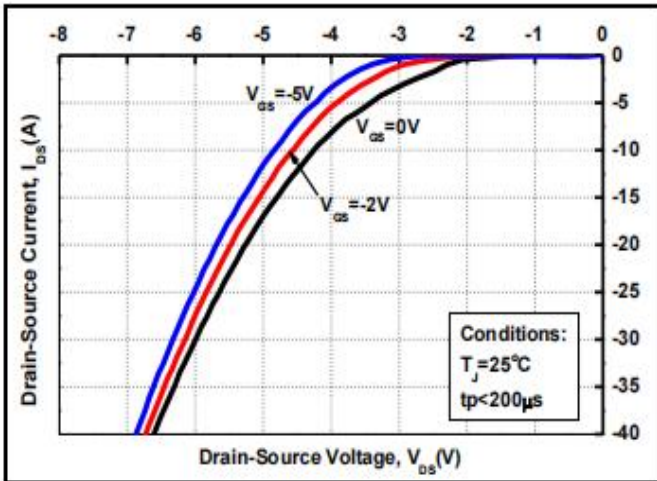


Figure 9. Body Diode Characteristic at 25 °C

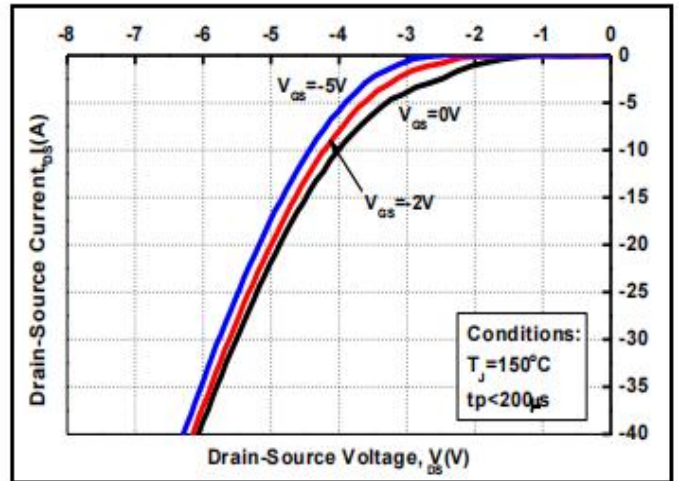


Figure 10. Body Diode Characteristic at 150 °C

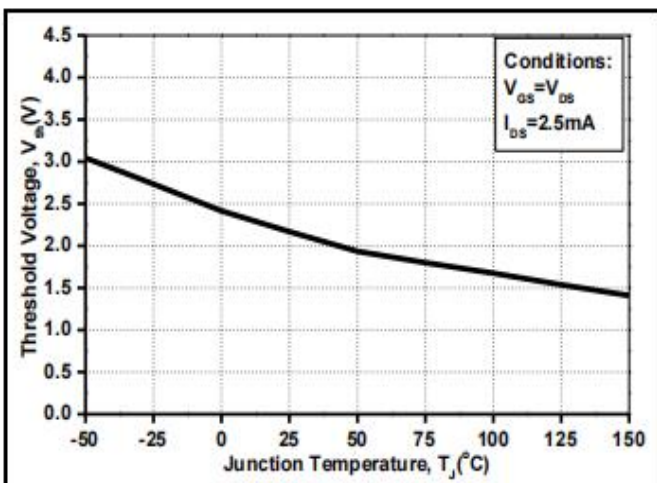


Figure 11. Threshold Voltage vs. Temperature

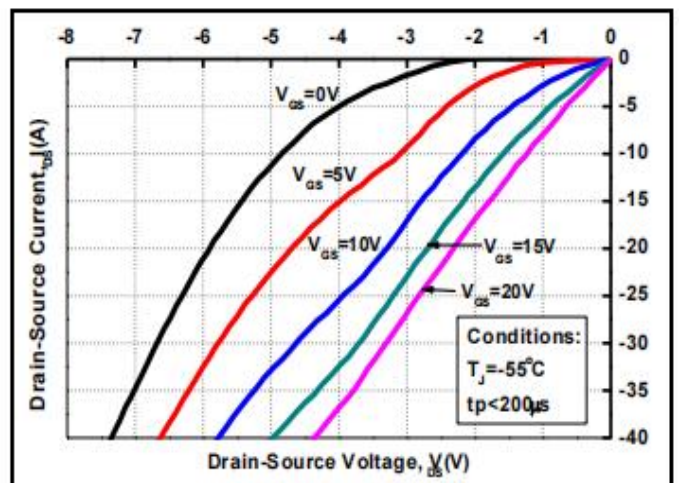


Figure 12. 3rd Quadrant Characteristic at -55 °C

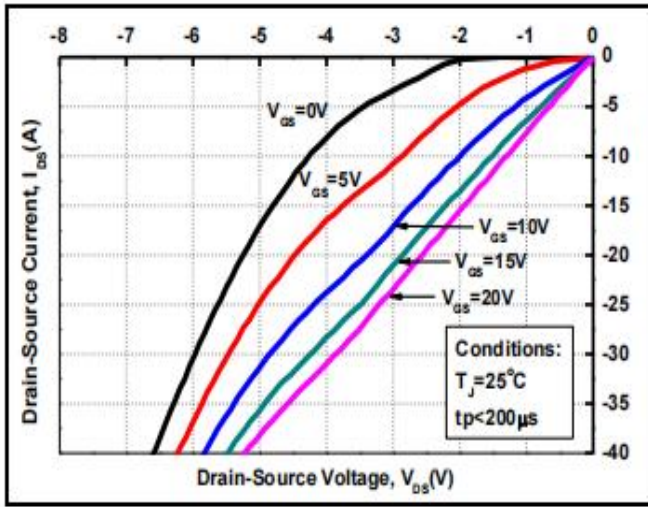


Figure 13. 3rd Quadrant Characteristic at 25 °C

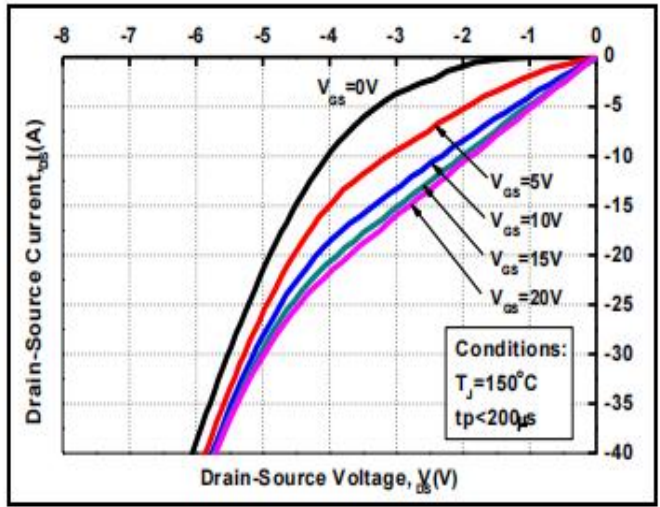


Figure 14. 3rd Quadrant Characteristic at 150 °C

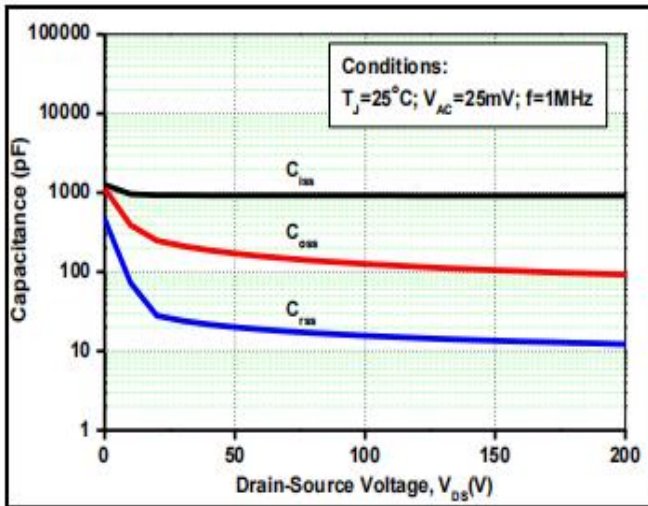


Figure 15. Capacitances vs. Drain-Source Voltage (0 - 200V)

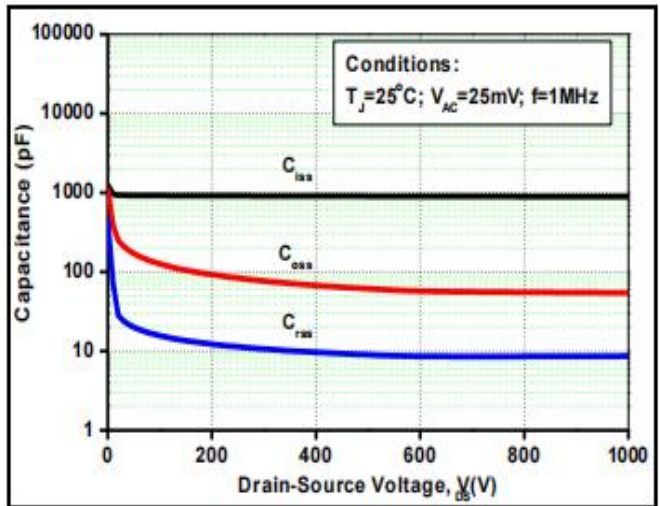
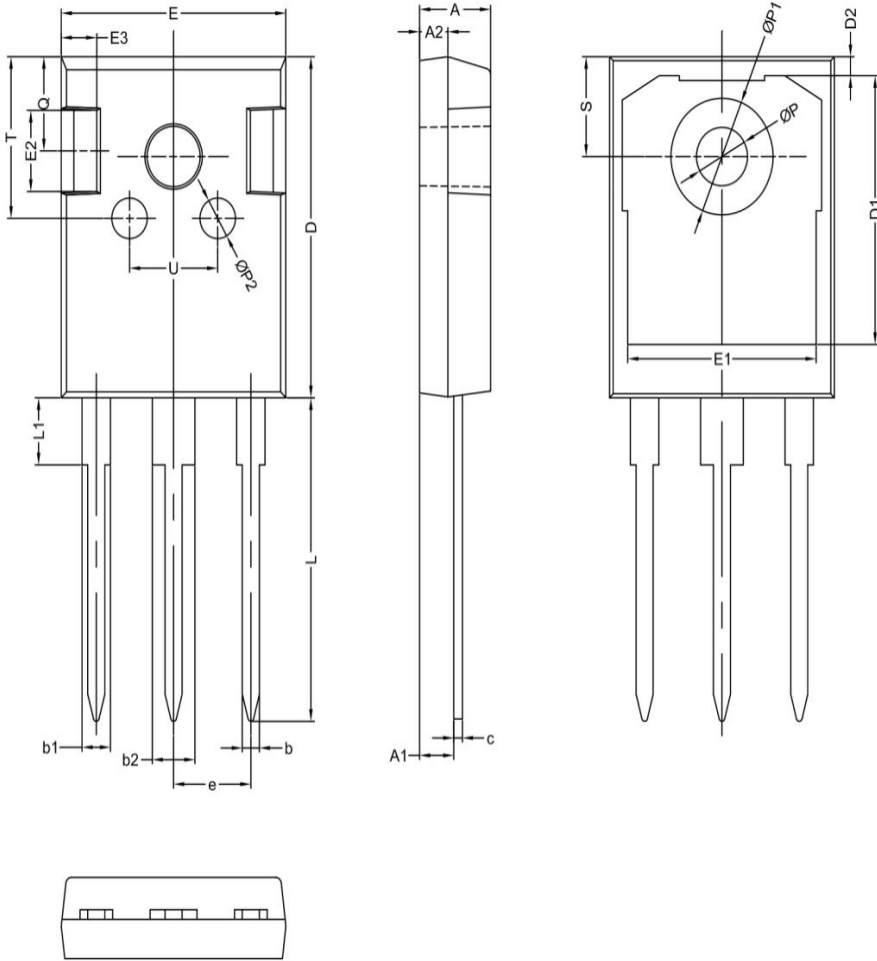


Figure 16. Capacitances vs. Drain-Source Voltage (0 - 1000V)

Package outline drawing(TO-247-3 Unit: mm)



符号	机械尺寸/mm		
	最小值	典型值	最大值
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.35
b1		2.00	
b2		3.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.55	
D2		1.20	
E	15.60	15.80	16.0
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1	-	-	7.40
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	

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