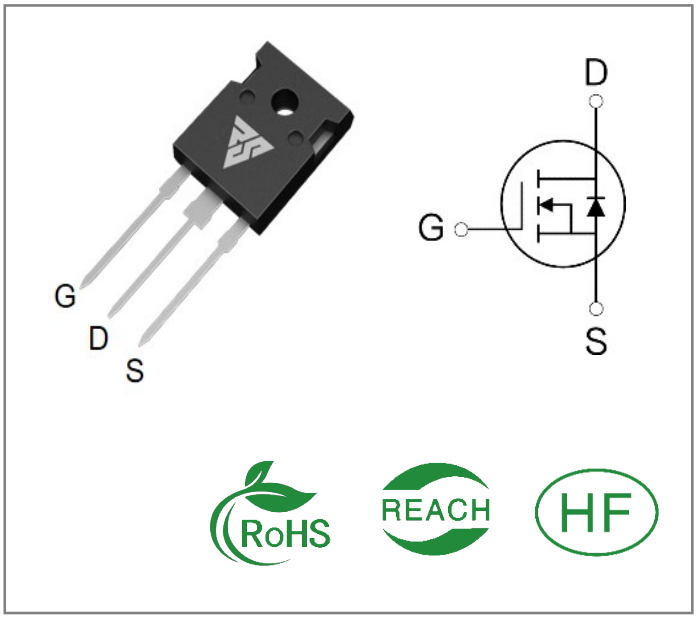
VDS	RDS(on)	ID@25℃
1700V	650mΩ	7A



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.
RSM170650W	TO-247-3	RSM170650W	Tube	30 PCS

Maximum Ratings （TJ= 25℃ 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/+25	V	Absolute maximum values	
VGSop	Gate - Source Voltage	-5/+20	V	Recommended operational values	
ID	Continuous Drain Current	7 4.5	A	VGS=20V, TC =25℃ VGS=20V, TC =100℃	
ID(pulse)	Pulsed Drain Current	9	A	Pulse width tp limited by TJmax	
PD	Power Dissipation	62	W	TC =25℃， TJ =150℃	
TL	Solder Temperature	260	℃		
TJ, Tstg	Operating Junction and StorageTemperature	-55 to + 150	℃		

Electrical Characteristics (TJ= 25℃ unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
V(BR)DSS	Drain-Source Breakdown Voltage	1700			V	VGS=0V,ID =100μA	
VGS(th)	Gate Threshold Voltage	2.0	2.6	4.0	V	VGS= VDS, IDS=1mA, TC =25℃	
			1.8		V	VGS= VDS, IDS=1mA, TC =150℃	
IDSS	Zero Gate Voltage Drain Current		1	100	μA	VDS= 1700V, VGS=0V	
IGSS	Gate-Source Leakage Current		10	250	nA	VGS=25V, VDS= 0V	
RDS(on)	Drain-Source on-state Resistance		650	850	mΩ	VGS=20V, ID =2.0A, TC =25℃	
			1300		mΩ	VGS=20V, ID =2.0A, TC =175℃	
Ciss	Input Capacitance		194		pF	VGS=0V, VDS=1000 V, f=1MHz，VAC=25 mV	
Coss	Output Capacitance		13				
Crss	Reverse Transfer Capacitance		1.8				
EON	Turn-On Switching Energy		5		mJ	VDS =1200V, VGS =-5/20V,ID = 2.0A, RG(ext) = 2.5Ω, L= 100μH	
EOFF	Turn-Off Energy		9.2				
td(on)	Turn-On Delay Time		13.8		ns	VDS =1200V, VGS =-5/20 V ID = 2.0A, RG(ext) =2. 5 Ω , RL =20Ω	
tr	Rise Time		22.8				
td(off)	Turn-Off Delay Time		38				
tf	Fall Time		14				
RG(int)	Internal Gate Resistance		18		Ω	f=1 MHz, VAC=25mV	
Qgs	Gate to Source Charge		5.4		nC	VDS=1200V, VGS=-5/20V ID =2.0A	
Qgd	Gate to Drain Charge		7.6				
Qg	Total Gate Charge		23				

Reverse Diode Characteristics (TJ= 25℃ unless otherwise specified)

Symbol	Parameter	Typ.	Max	Unit	Test Conditions	Note
VSD	Diode Forward Voltage	4.2		V	VGS=-5V, ISD =25A, TJ = 25℃	
		3.9		V	VGS=-5V, ISD=25A, TJ= 150℃	
IS	Continuous Diode Forward Current		7	A	TC= 25℃	
trr	Reverse Recovery time	25		ns	ISD= 2.0 A, VR = 1200V	
Qrr	Reverse Recovery Charge	15		nC		
Irrm	Peak Reverse Recovery Current	2.8		A		

Thermal Characteristics (TJ= 25℃ unless otherwise specified)

Symbol	Parameter	Typ.	Unit	Test Conditions	Note
RθJC	Thermal Resistance from Junction to Case	1.8	℃/W		
RθJA	Thermal Resistance From Junction to Ambient	40			

Typical Feature Curve

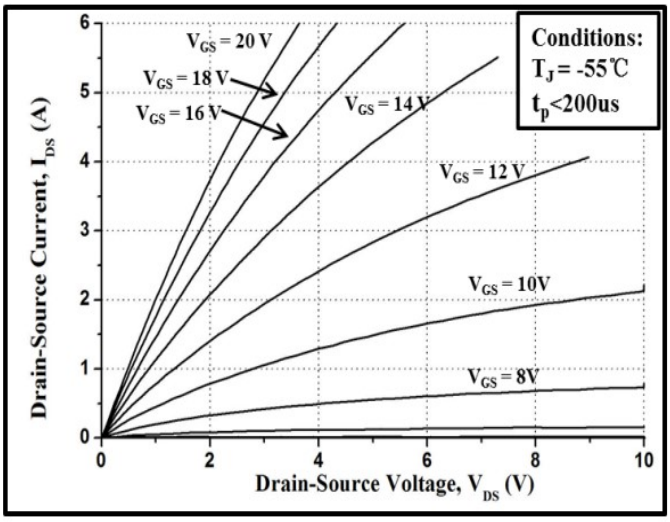


Figure 1. Output Characteristics T_J = -55 °C

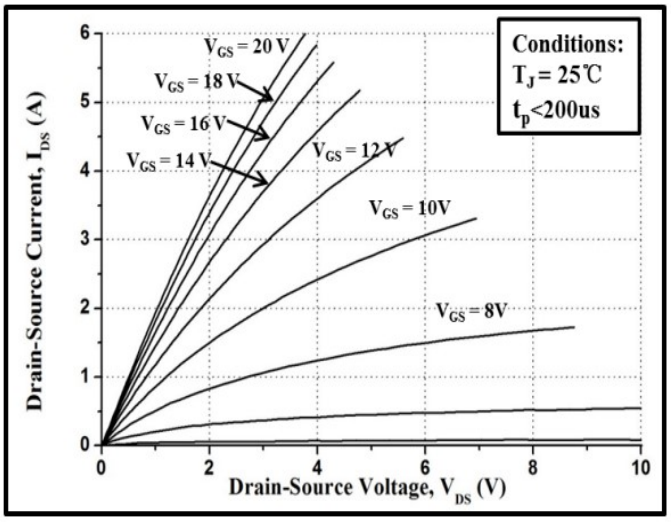


Figure 2. Output Characteristics T_J = 25 °C

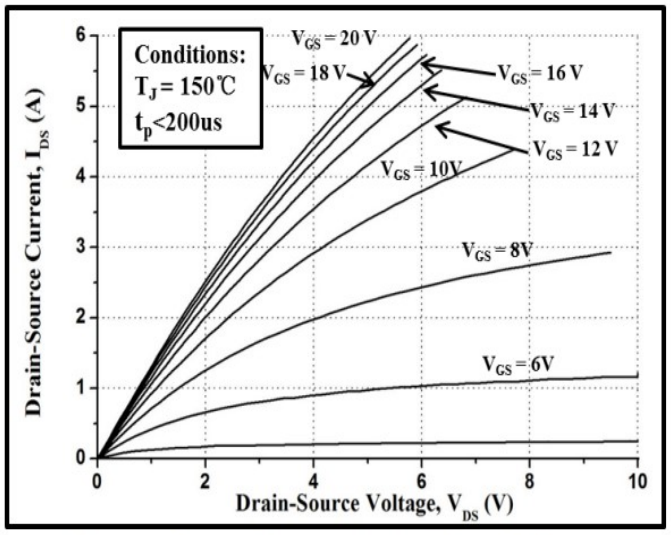


Figure 3. Output Characteristics T_J = 150 °C

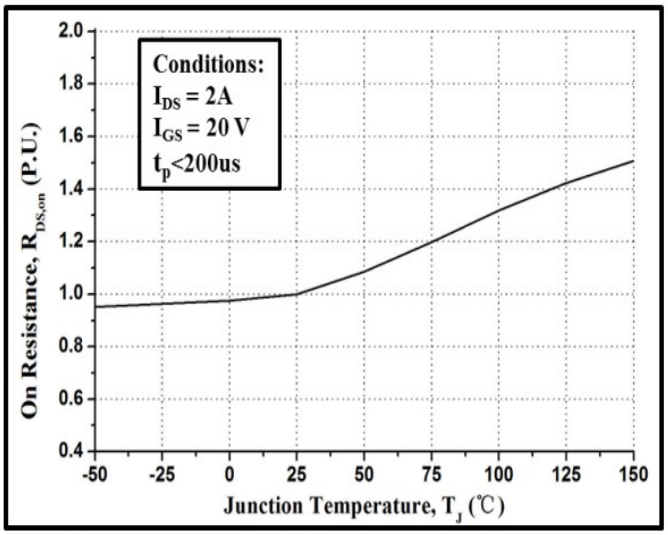


Figure 4. Normalized On-Resistance vs. Temperature

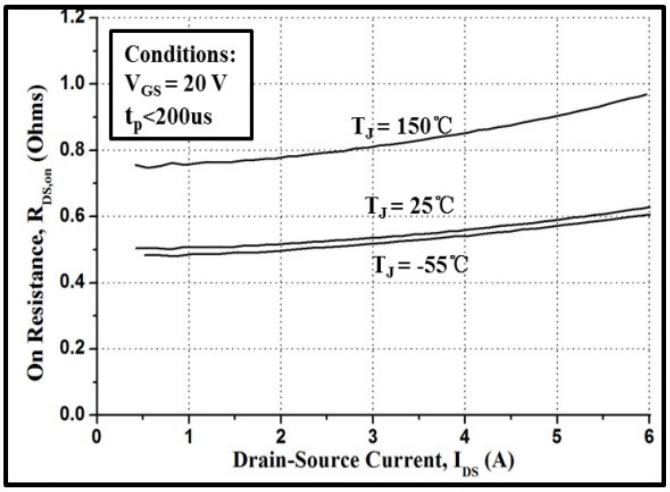


Figure 5. On-Resistance vs. Drain Current
For Various Temperatures

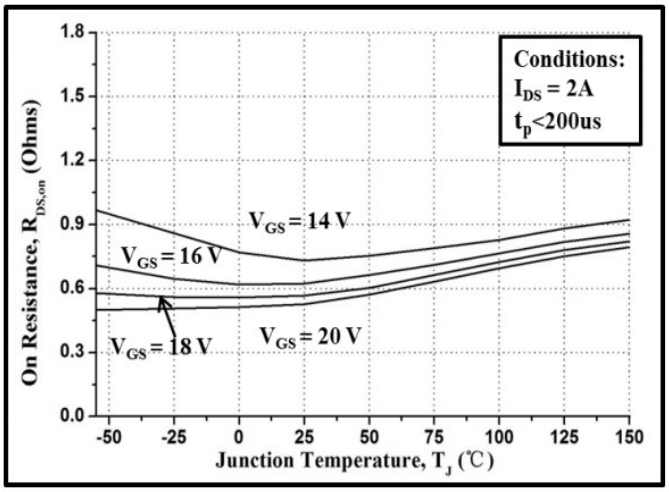


Figure 6. On-Resistance vs. Temperature
For Various Gate Voltage

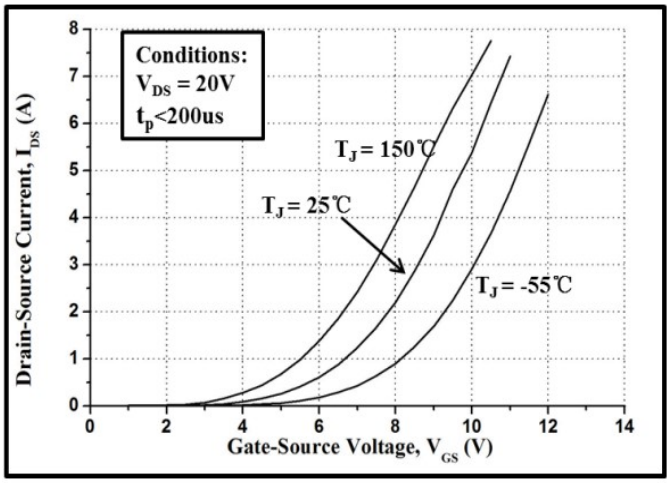


Figure 7. Transfer Characteristic for Various Junction Temperatures

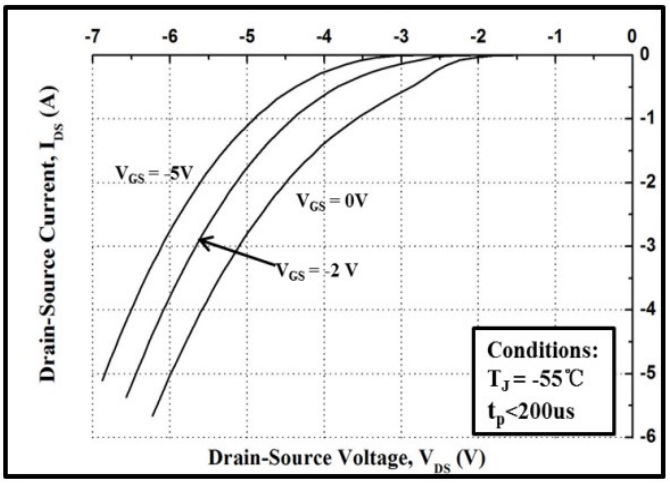


Figure 8. Body Diode Characteristic at -55 °C

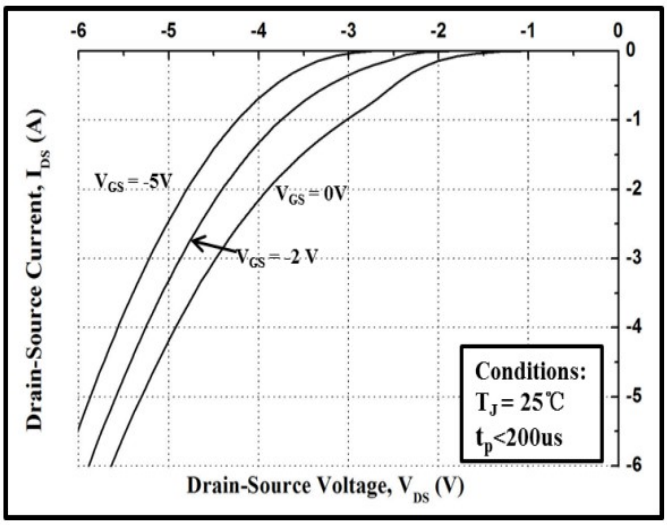


Figure 9. Body Diode Characteristic at 25 °C

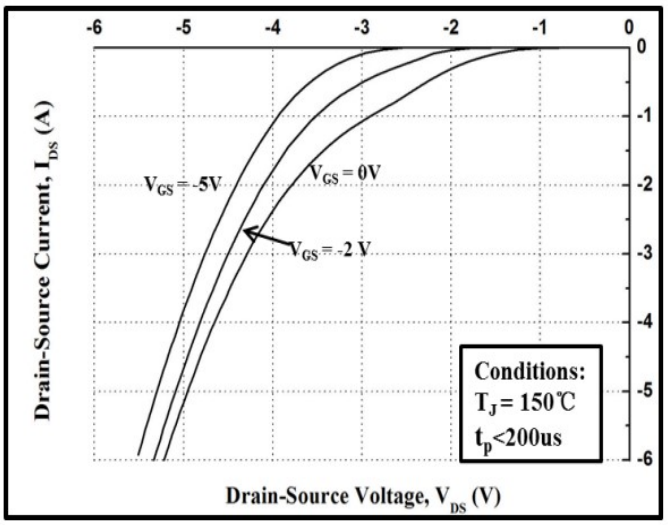


Figure 10. Body Diode Characteristic at 150 °C

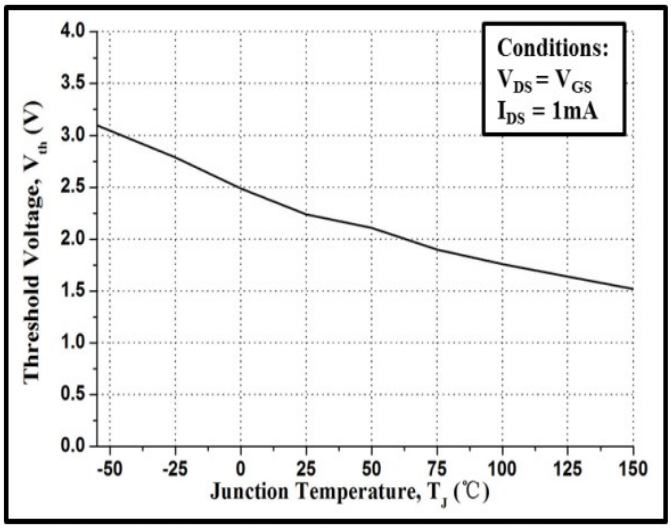


Figure 11. Threshold Voltage vs. Temperature

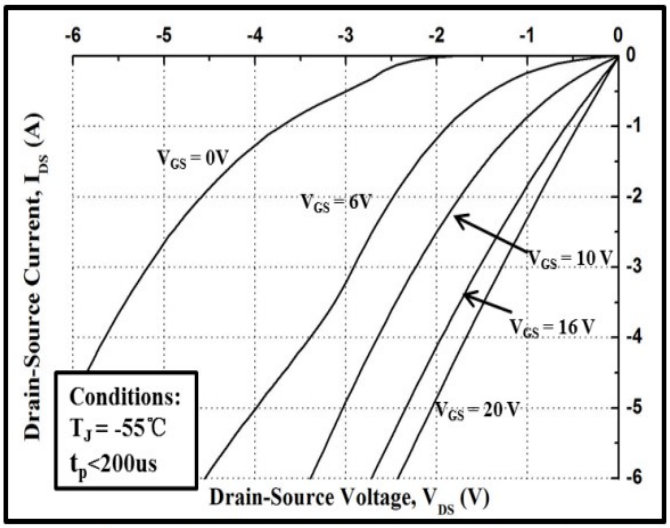


Figure 12. 3rd Quadrant Characteristic at -55 °C

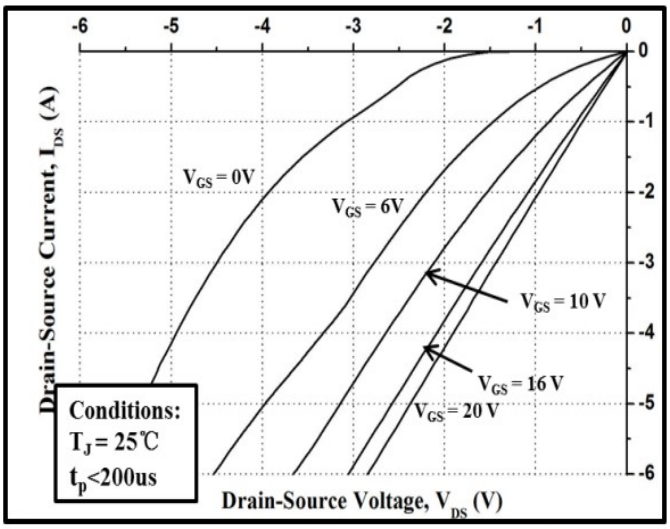


Figure 13. 3rd Quadrant Characteristic at 25 °C

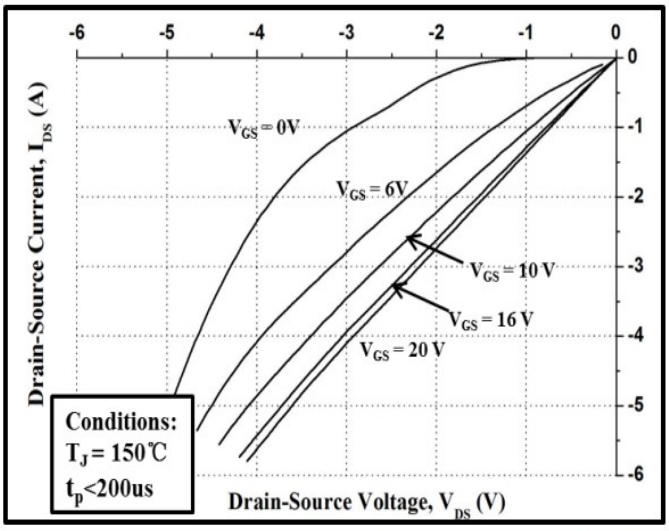


Figure 14. 3rd Quadrant Characteristic at 150 °C

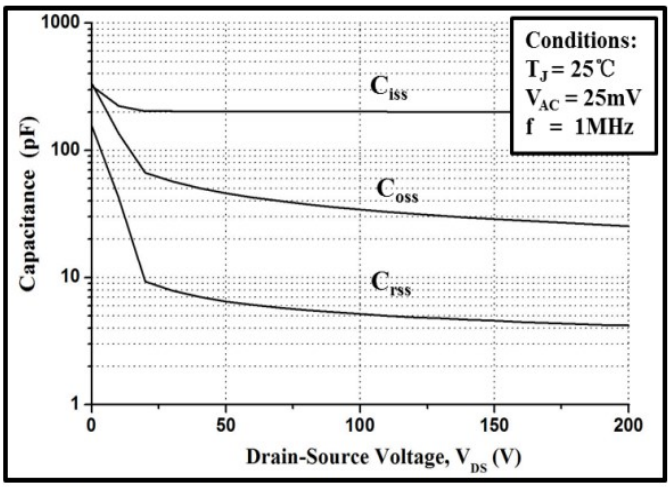


Figure 15. Capacitances vs. Drain-Source Voltage (0 - 200V)

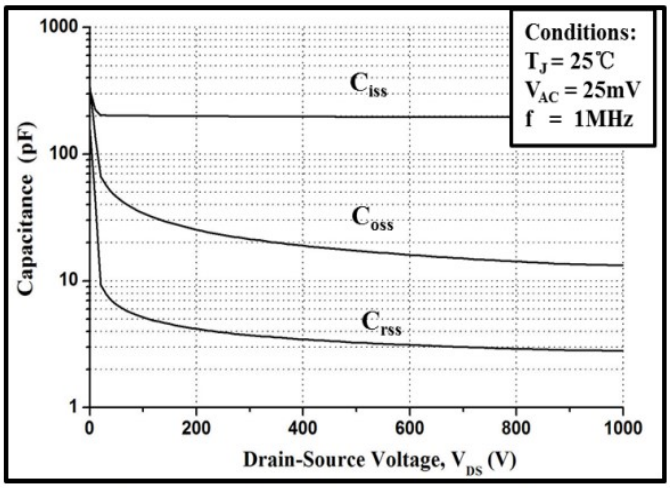


Figure 16. Capacitances vs. Drain-Source Voltage (0 - 1000V)

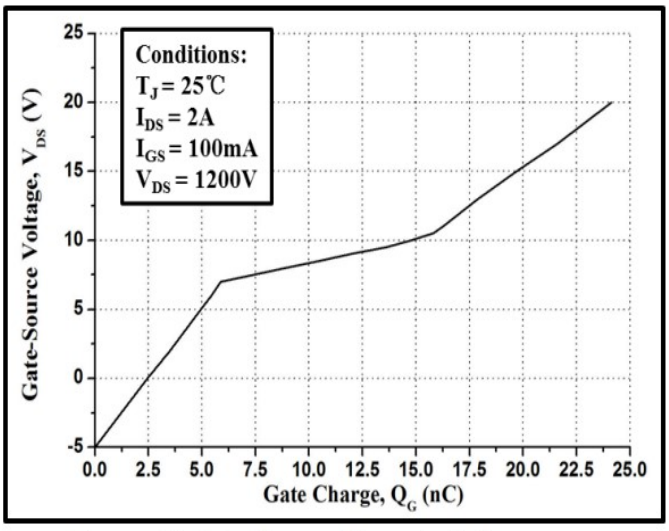


Figure 17. Gate Charge Characteristic

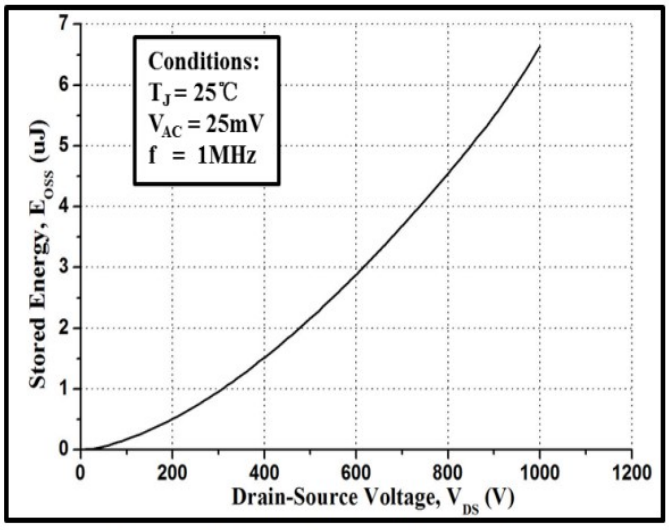
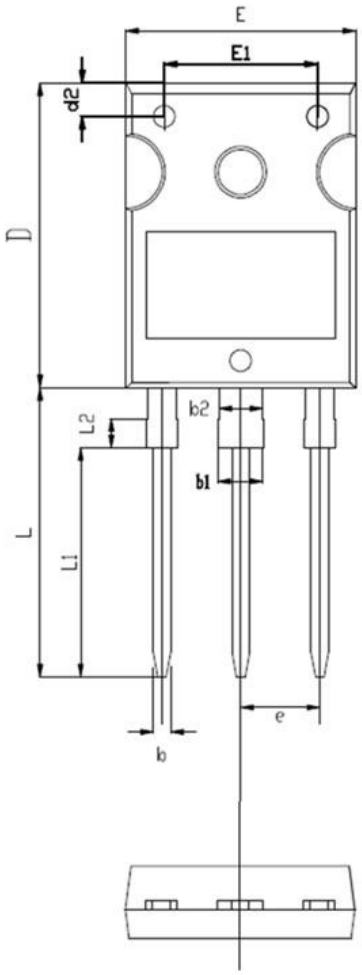
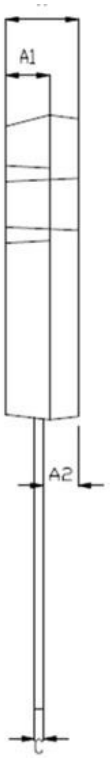
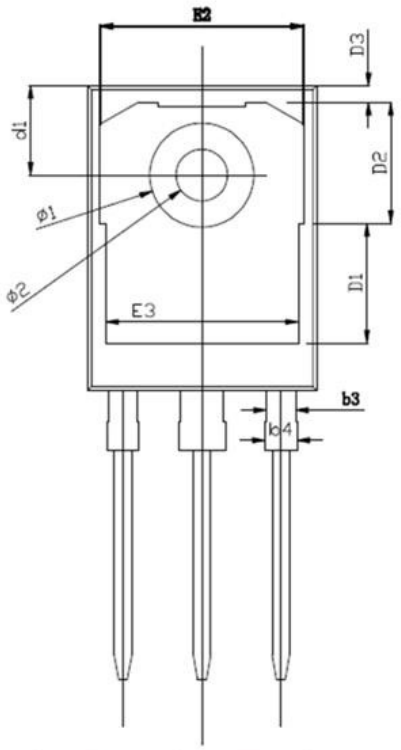


Figure 18. Output Capacitor Stored Energy

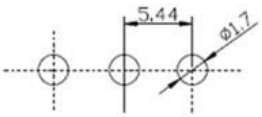
Package outline drawing(TO-247-3 Unit: mm)







RECOMMENDED LAND PATTERN



UNIT: mm

	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.80	3.00	3.20
A2	2.26	2.41	2.56
b	1.10	1.20	1.30
b1	2.90	–	3.20
b2	2.90	3.00	3.10
b3	1.90	2.00	2.10
b4	2.00	–	2.20
c	0.50	0.60	0.70
D	20.80	21.00	21.20
D1		8.23	
D2		8.32	
D3		1.17	
d1	6.00	6.15	6.30
d2	2.20	2.30	2.40
E	15.60	15.80	16.00
E1		10.50	
E2		14.02	
E3		13.50	
e	5.34	5.44	5.54
L	19.72	19.92	20.12
L1		15.79	
L2		1.98	
ø1	7.10	7.19	7.30
ø2	3.50	3.60	3.70

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