SPECIFICATION SHEET

N-CHANNEL SIC POWER MOSFET TO-247-3 LGE3M L SERIES

SPECIFICATION SHEET NO.	S1106 – LGE3M1K170BL0T	
ORIGINAL MFG/PART NO.	LGE Diodes/LGE3M1K170B-L	
NEXTGEN PART CODE	LGE3M1K170BL0T	Indicate This Code For RFQ /Order
DATE	Nov. 06, 2025	
REVISION	A2	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	Silicon Carbide (SiC) MOSFET, 3 Pins, Case TO-247-3, LGE3M L Series, N-Channel, Drain-Source Voltage (V_{DS}): 1700V Drain-Source On-State Resistance $R_{DS(ON)}$: 1.0Ω Continuous Drain Current (I_D) @ Tc=25℃: 5A Operating Temperature: -55°C ~ 150°C (T_J) Package in Tube, 30pcs/Tube RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE	
Issued/Checked/Approved	NextGen Components, Inc. Mandy Xu; NextGen Components, Inc. Ruby Zhang; NextGen Components, Inc. Jack Zhang
Effective Date: Nov. 06, 2025	

CUSTOMER APPROVE
Date:

MAIN FEATURE

Image shown is a representation only. Exact specifications should be obtained from the product dimension.

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitance
- Easy to Parallel and Simple to Drive
- Higher System Efficiency
- Reduced Cooling Requirements
- Increased Power Density
- Increased System Switching Frequency
- Meet MSL 1 Requirement
- Cross Competitors Parts and More.
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)

APPLICATION

- Auxiliary Power Supplies
- Switch Mode Power Supplies

ELECTRICAL CHARACTERISTICS

- See Page 5 ~ Page 7.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code LGE3M1K170BL0T For RFQ and Order.

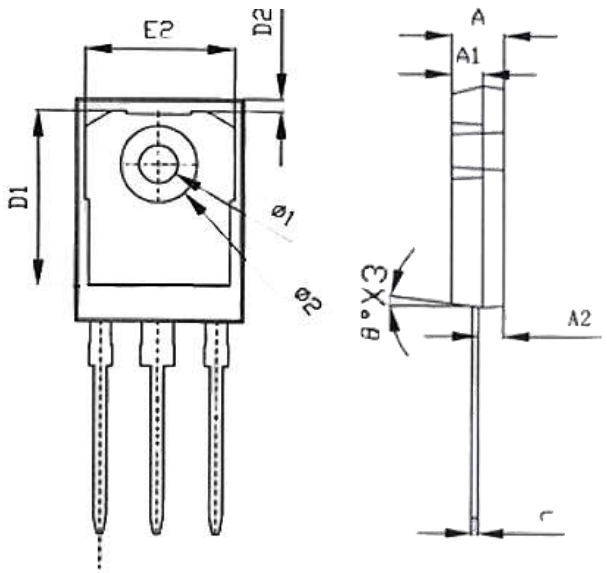
PART CODE GUIDE

RFQ
Request For Quotation

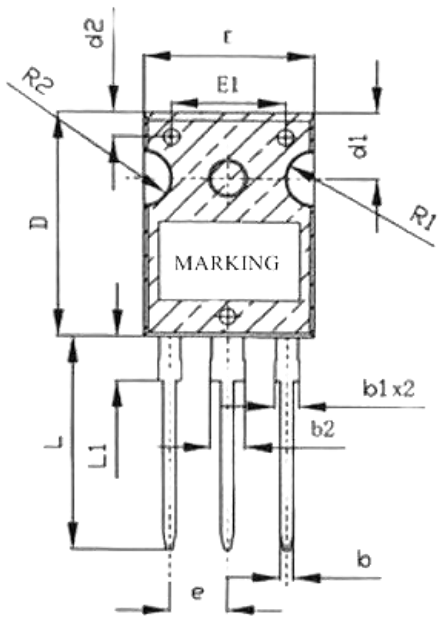
CODE	NAME	KEY SPECIFICATION OPTION
LGE3M	Product Series Code	Silicon Carbide (SiC) MOSFET, 3 Pins, Case TO-247-3, LGE3M L Series
1K	Drain-Source On-State (V_{DS}) Resistance $R_{DS(ON)}$ Code	1K: 1.0Ω
170	Drain-Source Voltage (V_{DS}) Code	170: 1700V Max.
B	Package Case Code	B: TO-247-3; E: TO-263-2; J: TO-263-7; Q: TO-247-4;
L0T	Internal Control Code	Letter A~Z, a-z or Digits (0-9)
XX	Special/Custom Parameters	Blank: N/A; XX: Letter A~Z, a~z or digits (0~9) for Special/Custom Parameters

DIMENSION - - Unit: (mm), Case TO-247-3 Outline

Top View

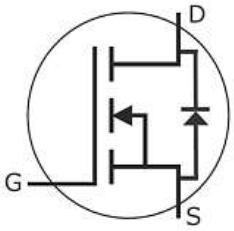


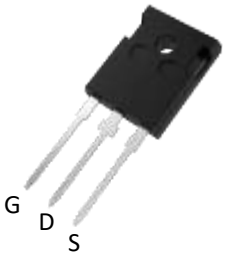
Side View



SYMBOL	TO-247-3		
	Min.	Typ.	Max.
A	4.9	5	5.1
A1	2.9	3	3.1
A2	2.31	2.36	2.41
b	1.16	1.2	1.26
b1	2.05	-	2.2
b2	3.05	-	3.2
c	0.58	0.6	0.66
D	20.9	21	21.1
D1	16.46	16.56	16.76
D2		1.17	
d1	6.05	6.15	6.25
d2	2.2	2.3	2.4
E	15.7	15.8	15.9
E1	-	10.5	-
E2	-	14.02	-
e	-	1.27bcs	-
L	19.82	19.92	20.02
L1	1.88	1.98	2.08
Θ	0°	7°	8°
R1	-	2.7	-
R2	-	2.5	-
Φ1	-	3.6	-
Φ2	-	7.19	-

INTERNAL CIRCUIT DIAGRAM





1700V N-CHANNEL SiC MOSFET

VDS	ID @ Tc=25℃	R DS(on)	MARKING	PACKAGE/CASE
1700V	5A	1.0Ω	LGE3M1K170B	TO-247-3

MAX. RATINGS @Tc=25 °C (Unless Otherwise Specified)

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Drain-Source Voltage	V DSMax	V GS=0V, I D=100μA	1700	V
Gate-Source Voltage	V GMAX	Absolute maximum values	-10/+25	V
Gate-Source Voltage	V Gsop	Recommended operational values	-5/+20	V
Continuous Drain Current	I D	V GS=20V, Tc=25°C	5.0	A
		V GS=20V, Tc=100°C	3.5	
Pulsed Drain Current	I D (pulse)	Pulse width tp limited by T jmax	6.0	A
Power Dissipation	P D	TC=25°C, Tj=150°C	69	W
Operating Junction Temperature Range	T J		-55 ~ +150	°C
Storage Temperature Range	T STG		-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS @Tc=25 °C (Unless Otherwise Specified) – Part I

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V I_D=100µA	1700	-	-	V
Gates Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=1mA	2.5	3.0	4.5	V
		V_{DS}=V_{GS}, I_D=1mA, T_j=150°C	-	2.2	-	
Zero Gates Voltage Drain Crurent	I_{DSS}	V_{DS}=1700V, V_{GS}=0V	-	1	100	µA
Gates-Source Leakage Crurent	I_{GSS+}	V_{GS}=25V, V_{DS}=0V	-	-	250	nA
Gates-Source Leakage Crurent	I_{GSS-}	V_{GS}=-10V, V_{DS}=0V	-	-	250	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=20V, I_D=2A	-	1.0	1.3	Ω
		V_{GS}=20V, I_D=2A, T_j=150°C	-	1.5	-	
Transconductance	g_{fs}	V_{DS}=20V, I_{DS}=2A	-	1.15	-	S
		V_{DS}=20V, I_{DS}=2A, T_j=150°C	-	1.30	-	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=1000V, f=1MHz, V_{AC}=25mV	-	186	-	pF
Output Capacitance	C_{oss}		-	12	-	pF
Reverse Transfer Capacitance	C_{rss}		-	1.6	-	pF
Coss Stored Energy	E_{oss}		-	6.2	-	µJ
Turn-On Switching Energy	E_{on}	V_{DS}=1200V, V_{GS}=-5V/20V, I_D=2A, $R_{G(ext)}$=2.5Ω, L=1500µH	-	48	-	µJ
Turn-Off Switching Energy	E_{off}		-	18	-	µJ
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=1200V, V_{GS}=-5V/20V, I_D=2A, $R_{G(ext)}$=2.5Ω, R_L=600Ω	-	5.2	-	ns
Rise Time	t_r		-	9.4	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	13.2	-	ns
Fall Time	t_f		-	22	-	ns

ELECTRICAL CHARACTERISTICS @Tc=25 °C (Unless Otherwise Specified) – Part II

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Internal Gate Resistance	R_G	f=1MHz, open drain	-	22	-	Ω
Gate to Source Charge	Q_{GS}	V_{DS}=1200V, V_{GS} =-5V/20V I_D =2A	-	5.2	-	nC
Gate to Drain Charge	Q_{GD}		-	7.3	-	nC
Total Gate Charge	Q_G		-	21.8	-	nC

REVERSE DIODE CHARACTERISTICS @Tc=25 °C (Unless Otherwise Specified)

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Diode Forward Voltage	V_{SD}	V_{GS} =-5V, I_{SD} =1A	-	4.2	-	V
		V_{GS} =-5V, I_{SD} =1A, Tj=150°C	-	3.9	-	V
Continuous Diode Forward Current	I_S	TC=25°C	-	-	4	A
Reverse Recovery Time	t_{rr}	V_{GS} = -5V, V_R=1200V, I_{SD}=2A	-	25	-	ns
Reverse Recovery Charge	Q_{rr}		-	15	-	nC
Peak Reverse Recovery Current	I_{rrm}		-	2.8	-	A

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			MIN.	TYP.	MAX.	
Thermal Resistance	Rth(j-c)	junction-case	1.8	2.0	-	°C/W

TYPICAL PERFORMANCE (For Reference Only)

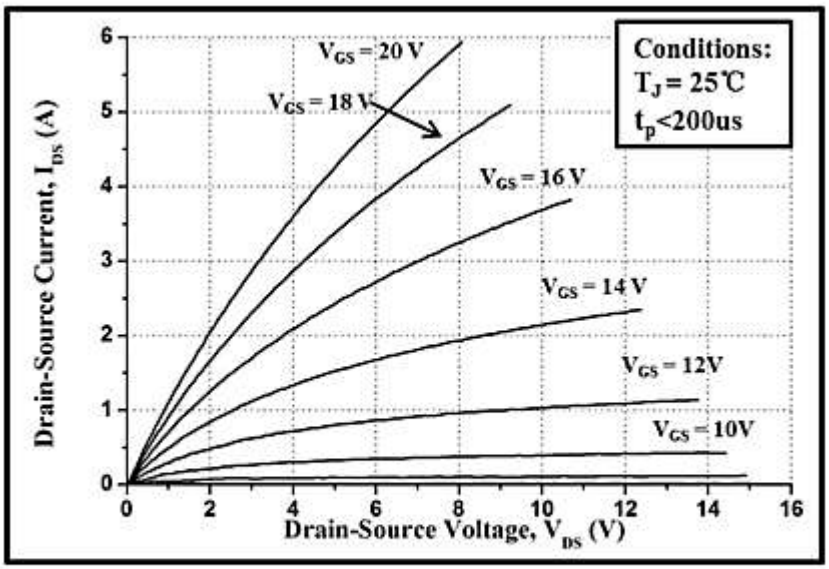


Figure 1. Typical Output Characteristics T_J= 25℃

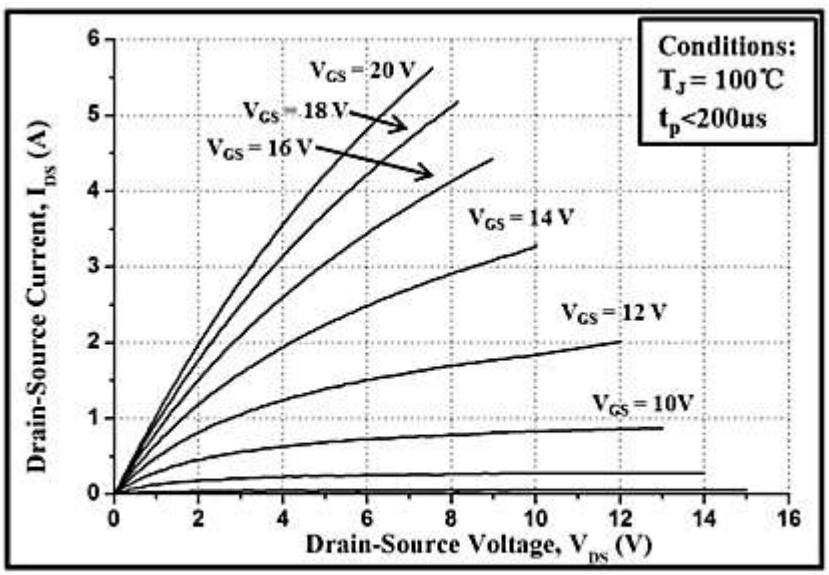


Figure 2. Typical Output Characteristics T_J= 100℃

TYPICAL PERFORMANCE (For Reference Only)

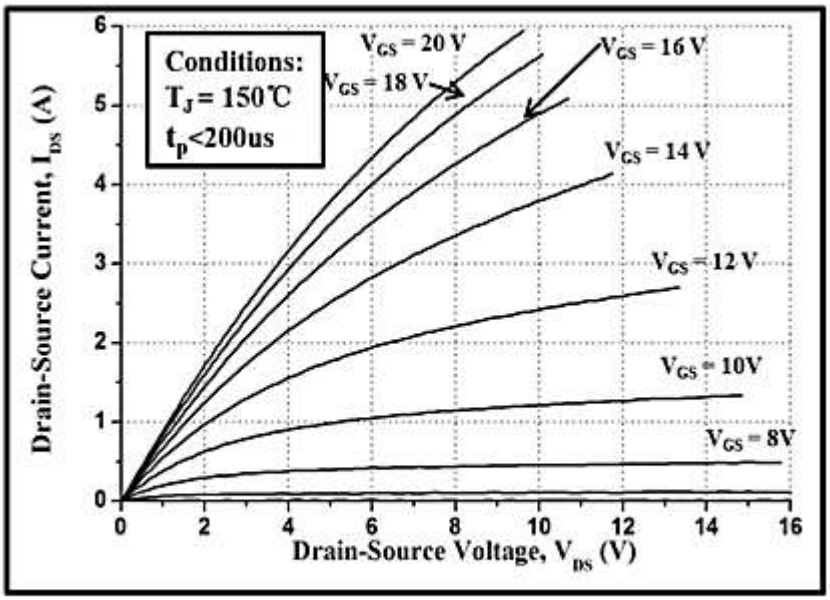


Figure 3. Typical Output Characteristics T_J=150℃

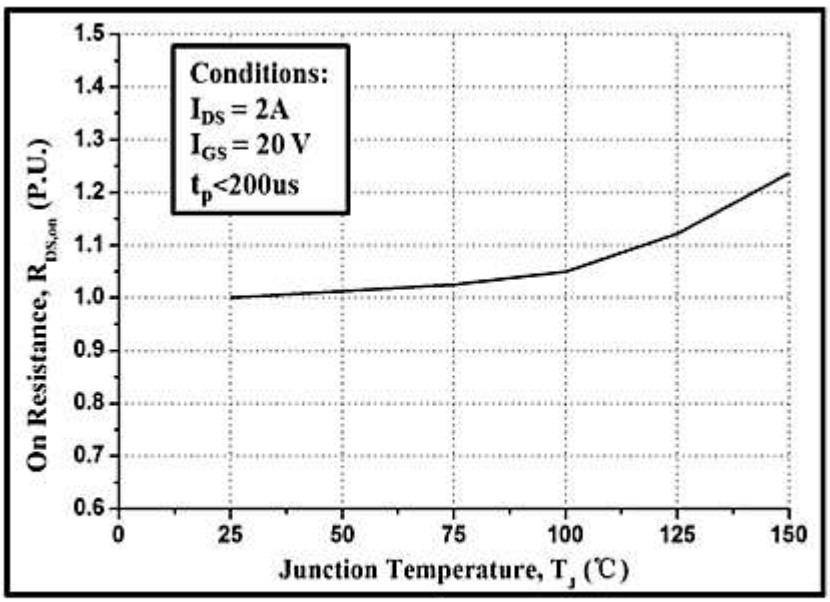


Figure 4. Normalized On-Resistance vs. Temperature

TYPICAL PERFORMANCE (For Reference Only)

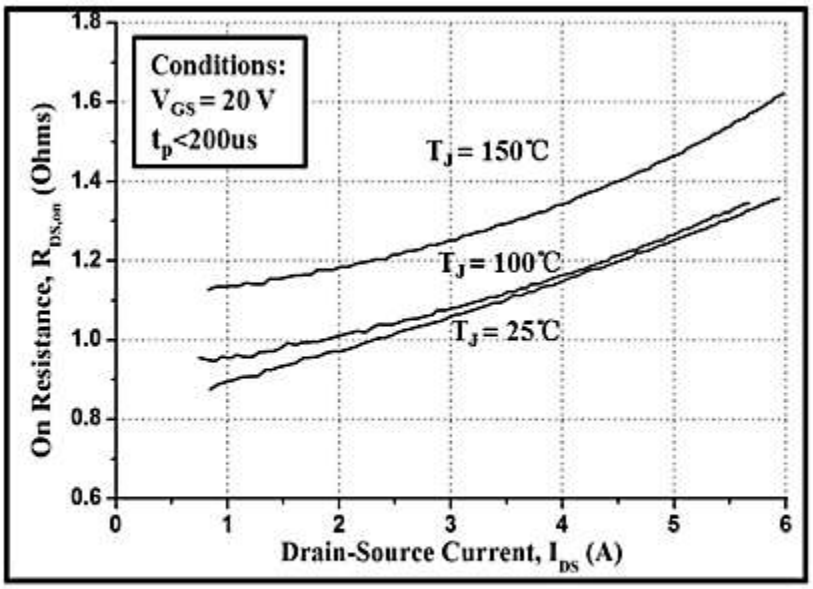


Figure 5. On-Resistance vs. Drain Current

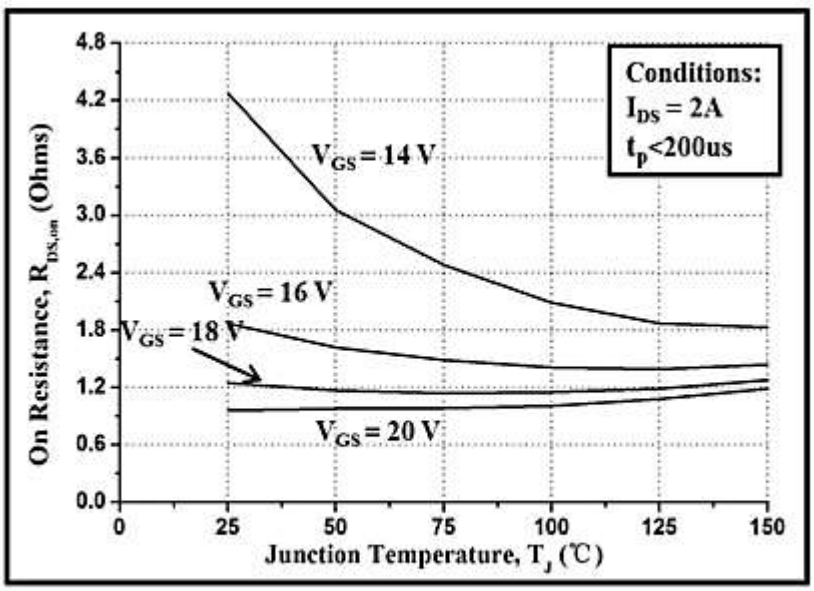


Figure 6. On-Resistance vs. Temperature

TYPICAL PERFORMANCE (For Reference Only)

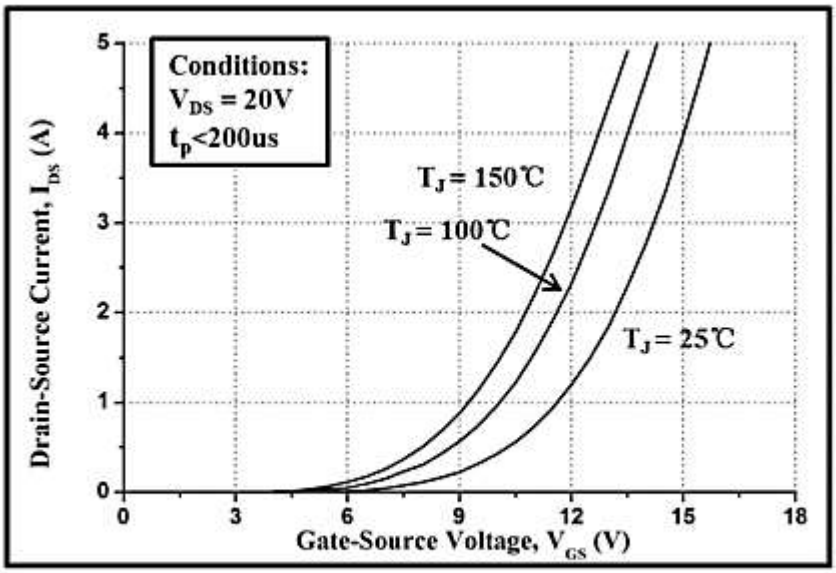


Figure 7. Typical Transfer Characteristics

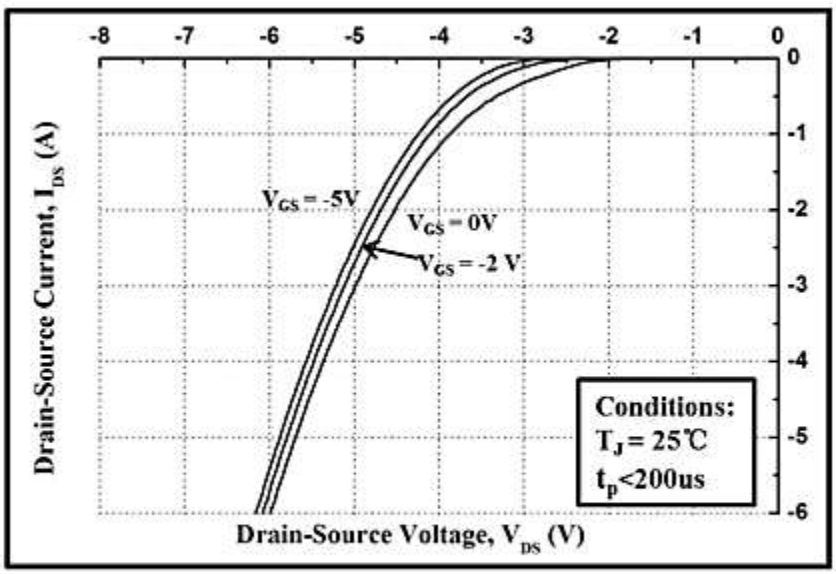


Figure 8. Body Diode Characteristics at 25℃

TYPICAL PERFORMANCE (For Reference Only)

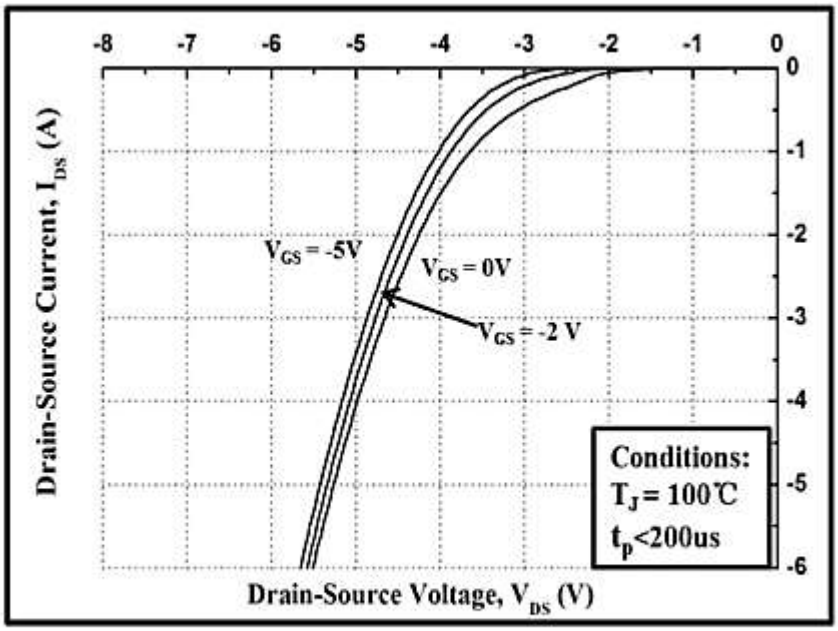


Figure 9. Body Diode Characteristics at 100℃

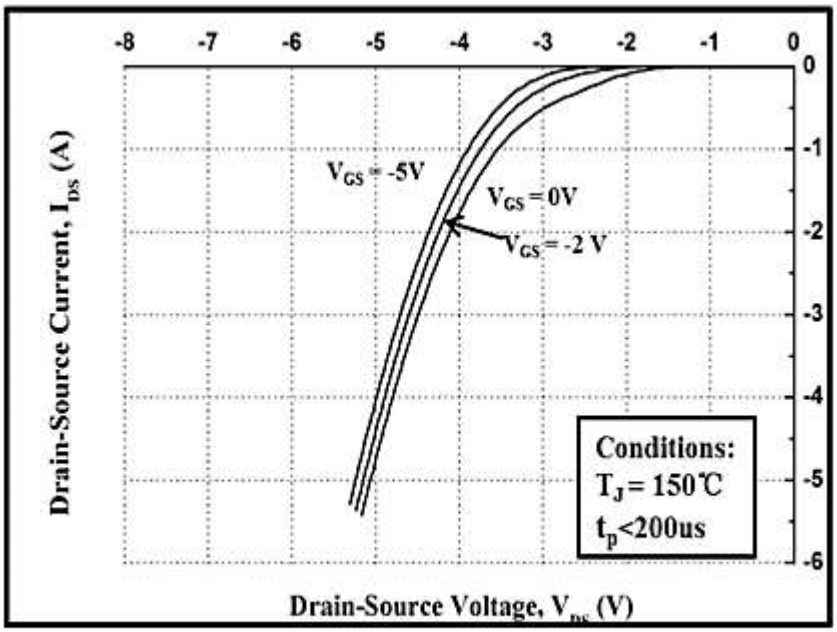


Figure 10. Body Diode Characteristics at 150℃

TYPICAL PERFORMANCE (For Reference Only)

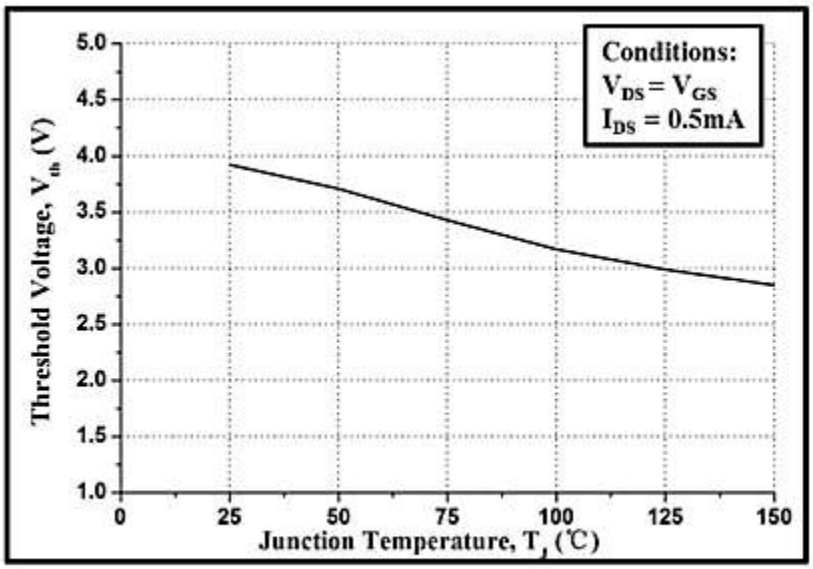


Figure 11. Gate Threshold Voltage vs. Temperature

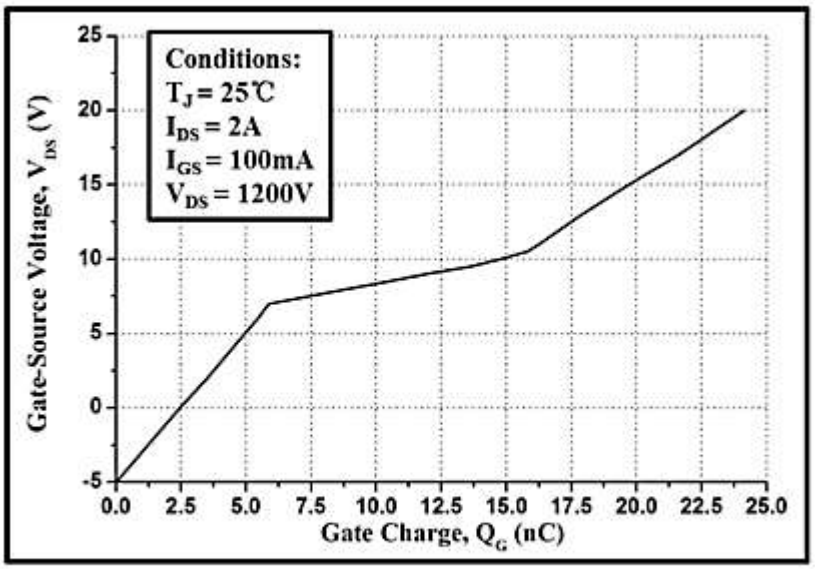


Figure 12. Gate Charge Characteristic

IMPORTANT NOTES AND DISCLAIMER

1. ROHS COMPLIANCE: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained can be obtained at Download Center.
2. REACH COMPLIANCE: REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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