SPECIFICATION SHEET

SILICON CARBIDE POWER MOSFET TO-263-7 LGE3M L SERIES

SPECIFICATION SHEET NO.	S1111 – LGE3M80120JL0S	
ORIGINAL MFG/PART NO.	LGE Diodes/LGE3M80120J-L	
NEXTGEN PART CODE	LGE3M80120JL0S	Indicate This Code For RFQ /Order
DATE	Nov. 11, 2025	
REVISION	A4	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	Silicon Carbide (SiC) MOSFET, 7 Pads, Case TO-263-7, LGE3M L Series, Drain-Source Voltage (V_{DS}): 1200V Max. Current Drain-source On-state Resistance $R_{DS(ON)}$: 80mΩ Typ. Continuous Drain Current (I_D) @ Tc=25℃: 32A Operating Temperature: -55°C ~ 175°C (T_J) Package in Tape/Reel, 800pcs/Reel 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	Mandy Xu; Ruby Zhang; Jack Zhang
Effective Date: Nov. 11, 2025	

CUSTOMER APPROVE
Date:

MAIN FEATURE

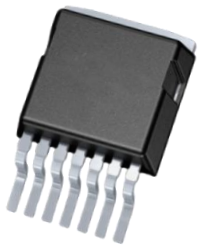


Image shown is a representation only. Exact specifications should be obtained from the product dimension.

- High Blocking Voltage with Low On-Resistance
- High Frequency Operation
- Ultra-Small Q gd
- Improve System Efficiency
- Increase Power Density
- Reduce Heat Sink Requirements
- Reduction of System Cost
- Meet MSL 1 Requirement
- Qualified to AEC-Q101
- 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

- Solar Inverters
- EV Charging Station

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 LGE3M80120JL0S For RFQ and Order.

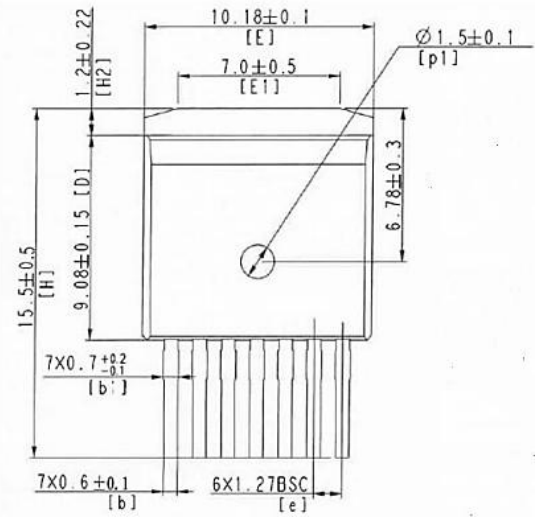
PART CODE GUIDE

RFQ
Request For Quotation

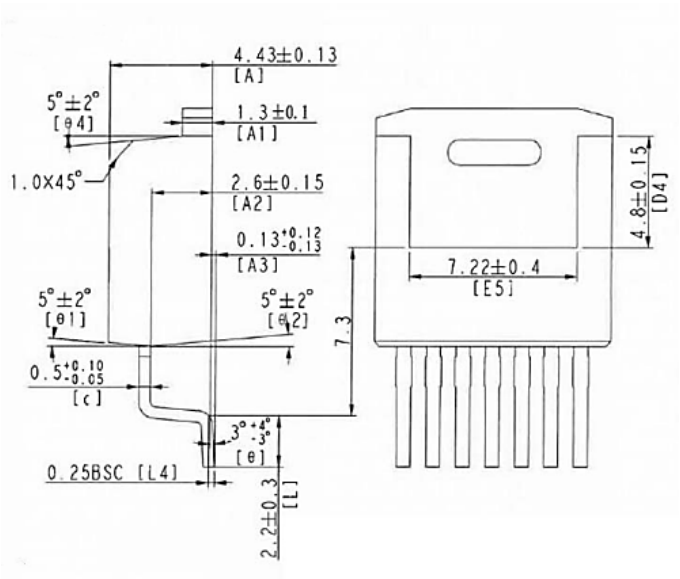
CODE	NAME	KEY SPECIFICATION OPTION
LGE3M	Product Series Code	Silicon Carbide (SiC) Power MOSFET, 7 Pads, Case TO-263-7, LGE3M L Series
80	Current Drain-source On-state Resistance RDS(ON) Code	80: 80mΩ
120	Drain-Source Voltage (V_{DS}) Code	120: 1200V Max.
J	Package Case Code	B: TO-247-3; E: TO-263-2; J: TO-263-7; Q: TO-247-4;
L0S	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

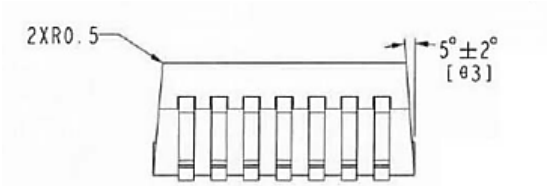
DIMENSION - - Unit: (mm), Case TO-263-7 Outline

Top View

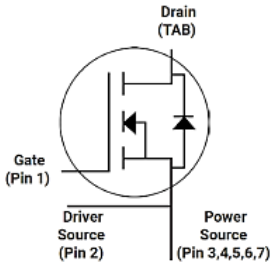


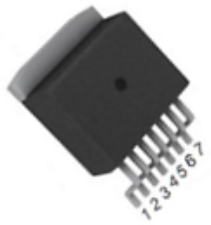
Side View





INTERNAL CIRCUIT DIAGRAM





Drain	TAB
Gate	1
Driver Source	2
Power Source	3~7

1200V SiC MOSFET

VDS	ID @ Tc=25℃	R DS(on)	MARKING	PACKAGE/CASE
1200V	32A	80mΩ	LGE3M80120J	TO-263-7

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

- Stresses exceeding those listed in the Maximum Ratings table may damage the device.
- If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Drain-Source Voltage	$V_{DS, Max}$	V_{GS}=-3V, I_D=100μA	1200	V
Gate-Source Voltage (Dynamic)	$V_{GS, MAX}$	AC(f >1Hz)	-8/+19	V
Gate-Source Voltage (Static)	$V_{GS\ max\ (op)}$	Static	-3/+15	V
Continuous Drain Current	I_D	V_{GS}=15V, Tc=25°C	32	A
		V_{GS}=15V, Tc=100°C	23	
Total Power Dissipation	P_D	TC=25°C	136	W
Operating Junction Temperature Range	T_J		-55~ +175	°C
Storage Temperature Range	T_{STG}		-55~ +175	°C
Solder Temperature	T_L		260	°C

ELECTRICAL CHARACTERISTICS - @Tc=25 °C (Unless Otherwise Specified)

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=-3V, I_D=100μA	1200	-	-	V
Gates Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=30mA	1.8	2.2	-	V
		V_{DS}=V_{GS},I_D=30mA, T_C=175°C	-	1.45	-	
Zero Gates Voltage Drain Current	I_{DSS}	V_{DS}=1200V, V_{GS}=-3V	-	0.14	10	μA
Gates-Source Leakage Crurent	I_{GSS}	V_{GS}=15V, V_{DS}=20V	-	20	250	nA
Drain-source On-state Resistance	$R_{DS(ON)}$	V_{GS}=20V, I_D=10A Tj=25°C	-	80	96	mΩ
		V_{GS}=15V, I_D=20A Tj=125°C	-	80	-	
		V_{GS}=15V, I_D=20A Tj=175°C	-	80	-	
Input Capacitance	C_{ISS}	V_{DS}=800V, V_{GS}=0V f = 1MHz, V_{AC}=25mV	-	2070	-	pF
Output Capacitance	C_{OSS}		-	78	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	8	-	pF
C_{OSS} Stored Energy	E_{OSS}		-	53.1	-	μJ
Total Gate Charge	Q_g	V_{DS} =800V, V_{GS} =-3/15V I_D =20mA	-	57.2	-	nC
Gate-Source Charge	Q_{gs}		-	20.8	-	
Gate-Drain Charge	Q_{gd}		-	13.5	-	
Internal Gate Input Resistance	$R_{g(int)}$	f =1MH, V_{AC}=25mV		1.76		Ω
Transconductance	g_{fs}	V_{DS}=20V, I_{DS}=20A, Tj=25°C	-	10.6	-	S
		V_{DS}=20V, I_{DS}=20A, Tj=175°C	-	11.5	-	

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

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Diode Forward Voltage	V_{SD}	V_{GS} =-3V, I_{SD} =10A	-	4.8	-	V
		V_{GS} = -3V, I_{SD} = 10A, T_J = 175℃	-	4.6	-	
Reverse Recovery time	I_S	V_{GS} =-3V	-	22		A

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			MIN.	TYP.	MAX.	
Thermal Resistance	$R_{th(j-c)}$	Junction-case	-	1.1	-	°C/W

TYPICAL PERFORMANCE (For Reference Only)

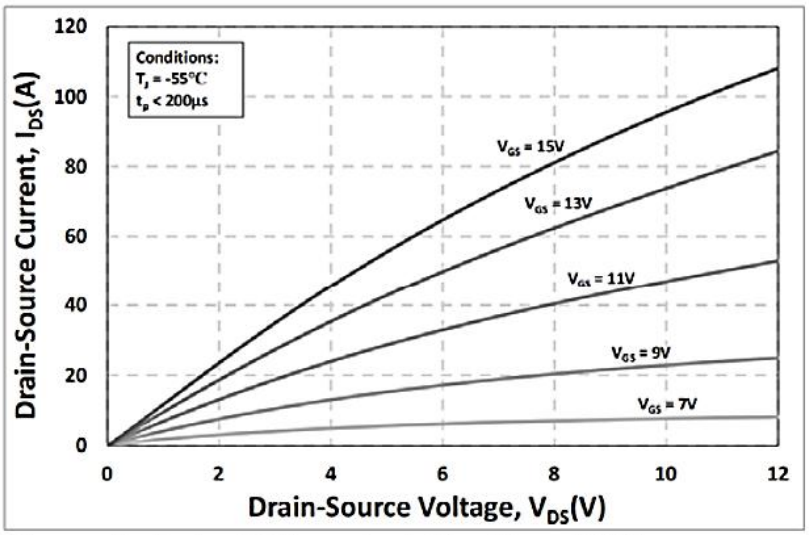


Figure 1. Output Characteristics T_J = -55°C

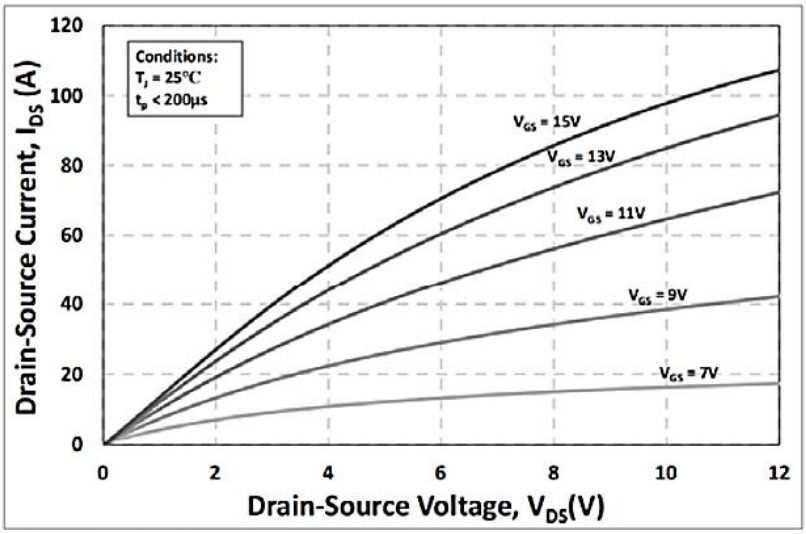


Figure 2. Output Characteristics T_J = 25°C

TYPICAL PERFORMANCE (For Reference Only)

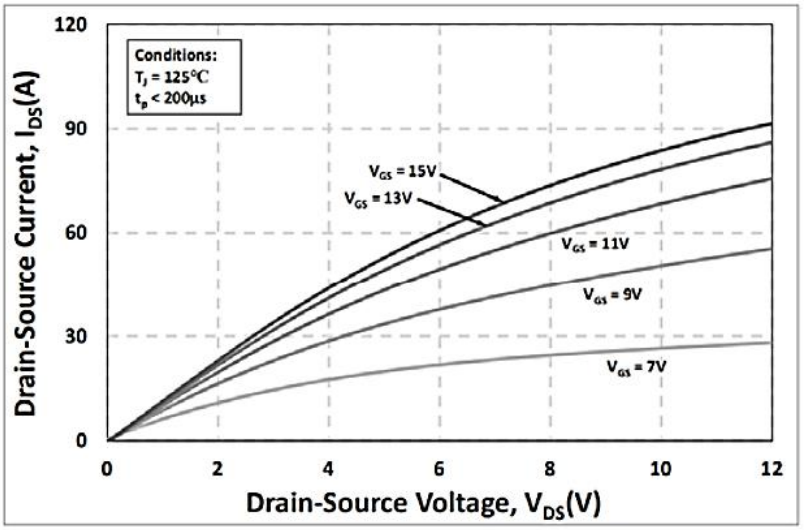


Figure 3. Output Characteristics T_J = 125°C

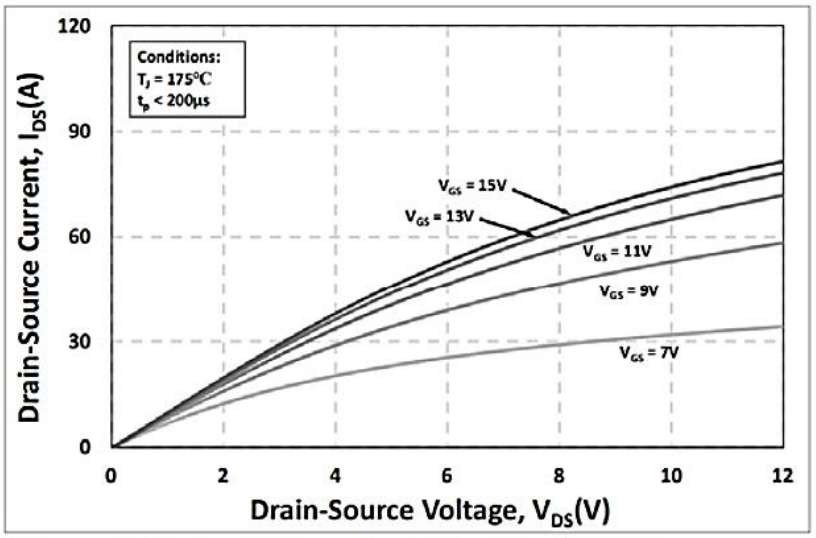


Figure 4. Output Characteristics T_J = 175°C

TYPICAL PERFORMANCE (For Reference Only)

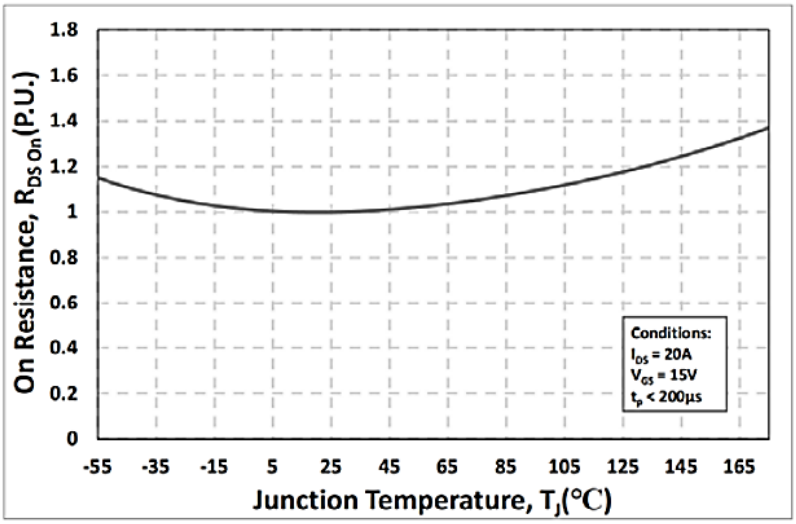


Figure 5. Normalized On-Resistance vs. Temperature

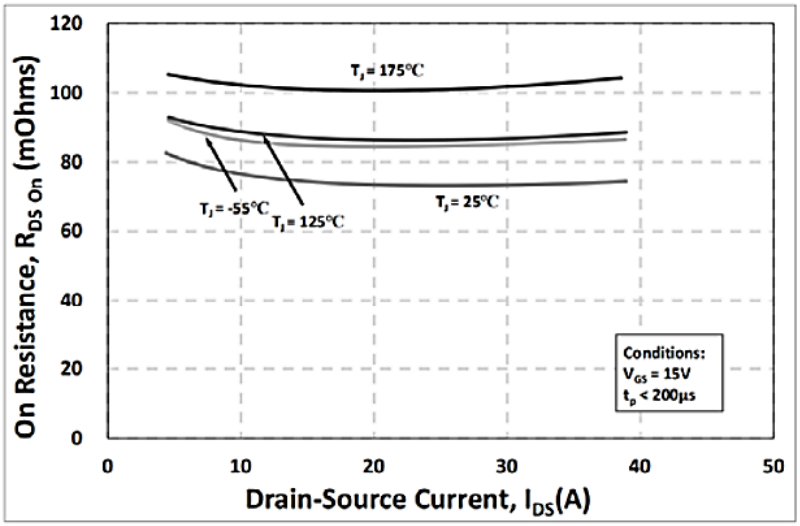


Figure 6. On-Resistance vs. Drain Current Various Temperatures

TYPICAL PERFORMANCE (For Reference Only)

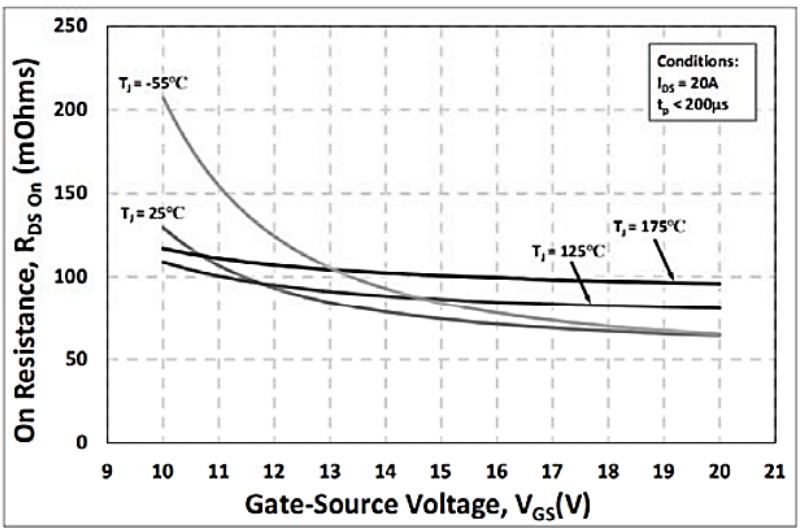


Figure 7. On-Resistance vs. Gate-Source Voltage

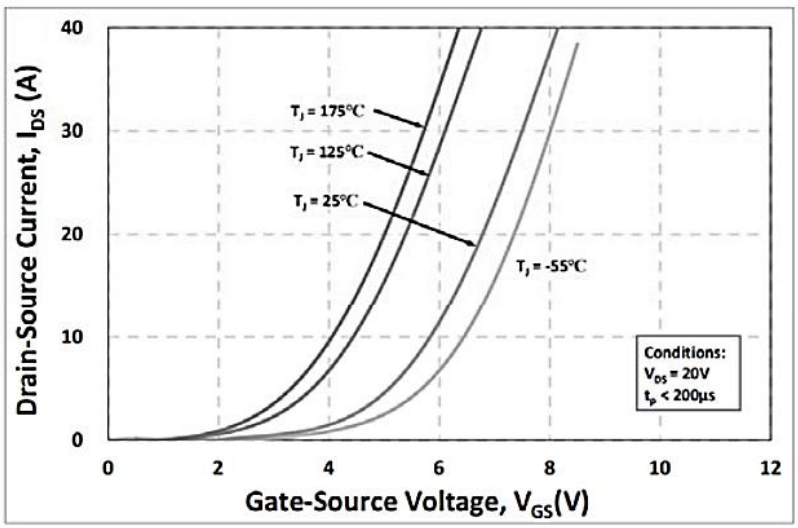


Figure 8. Transfer Characteristic for Various Junction Temperatures

TYPICAL PERFORMANCE (For Reference Only)

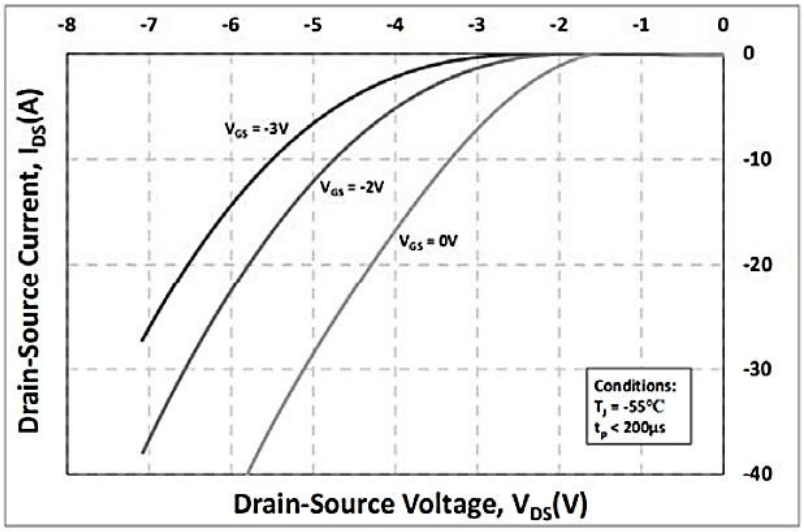


Figure 9. Body Diode Characteristic at -55°C

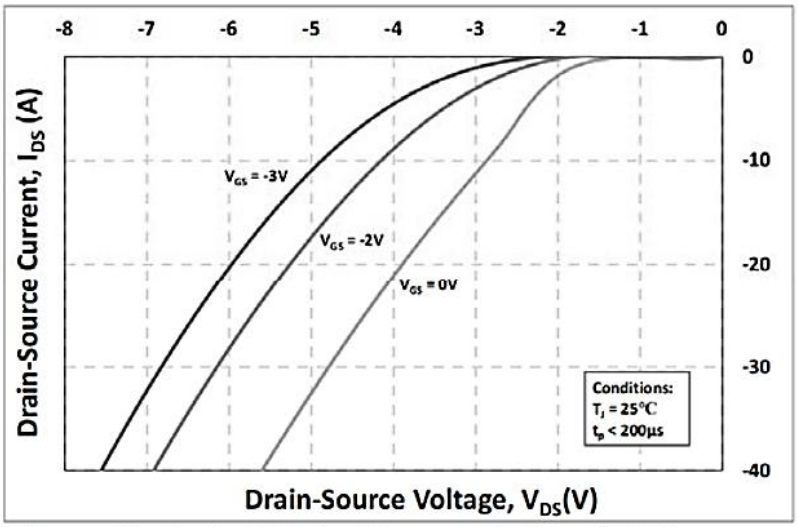


Figure 10. Body Diode Characteristic at 25°C

TYPICAL PERFORMANCE (For Reference Only)

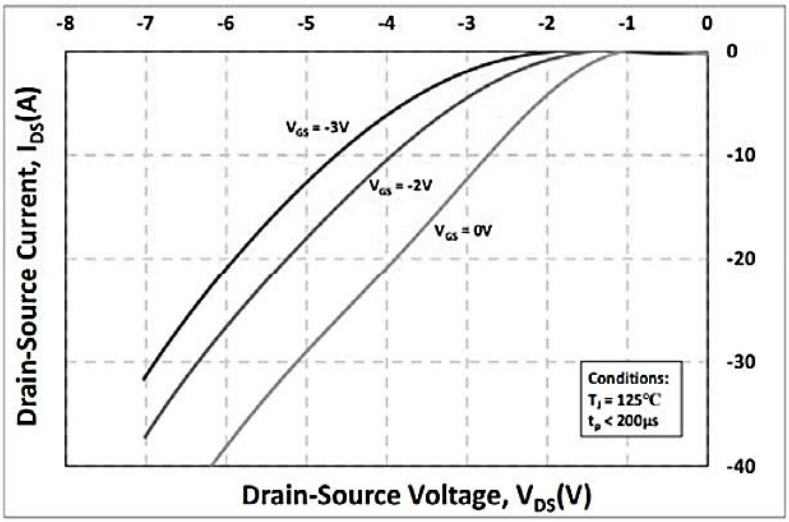


Figure 11. Body Diode Characteristic at 125°C

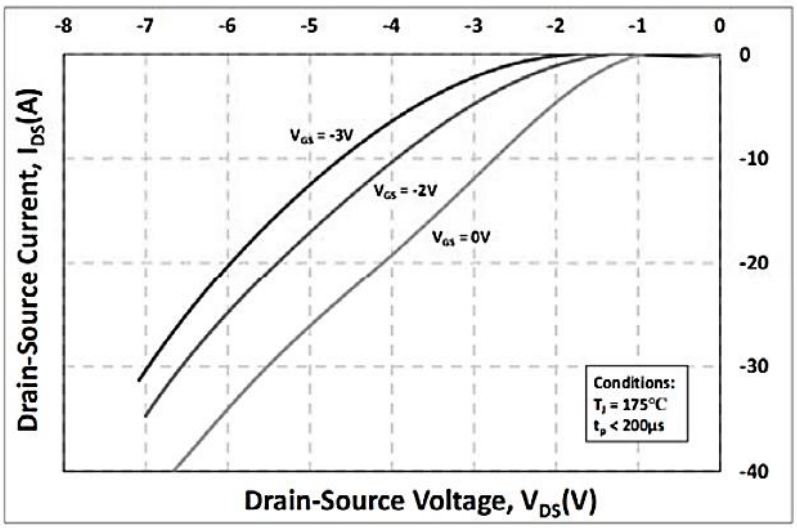


Figure 12. Body Diode Characteristic at 175°C

TYPICAL PERFORMANCE (For Reference Only)

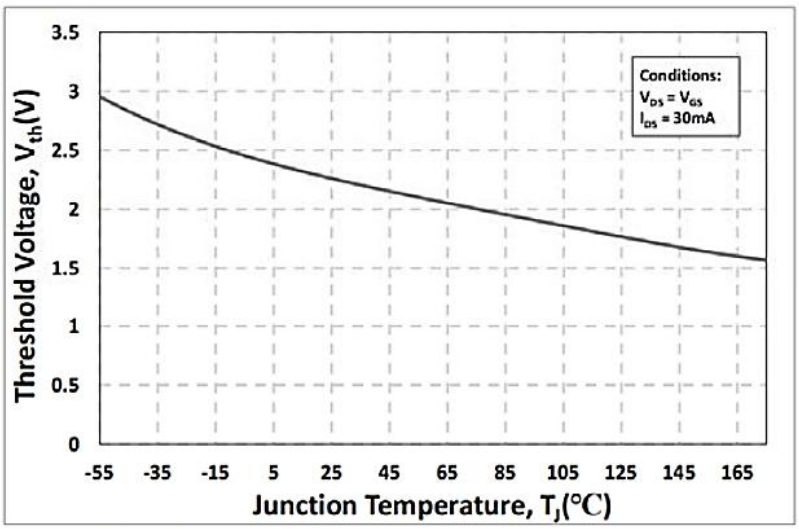


Figure 13. Threshold Voltage vs. Temperature

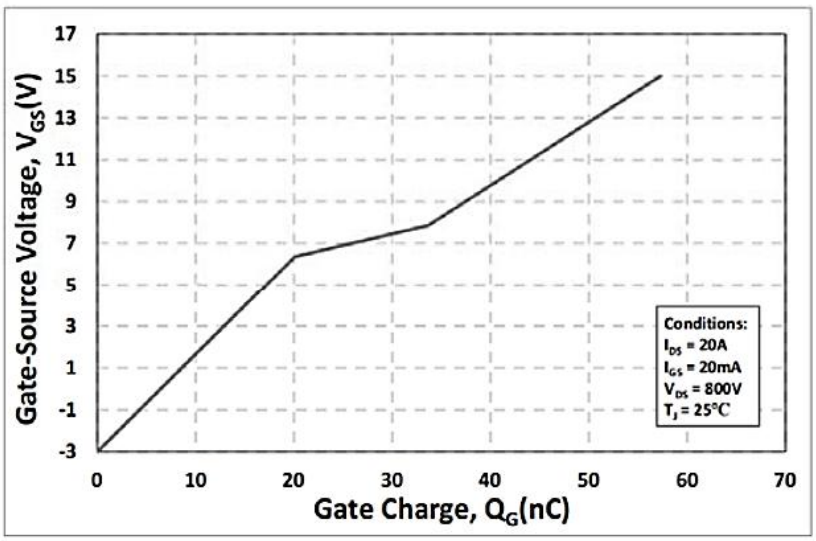


Figure 14. Gate Charge Characteristics

TYPICAL PERFORMANCE (For Reference Only)

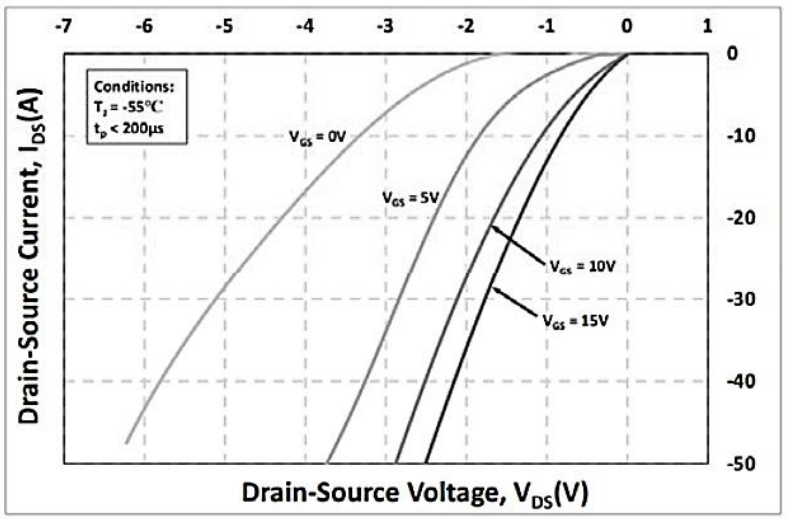


Figure 15. 3rd Quadrant Characteristic at -55°C

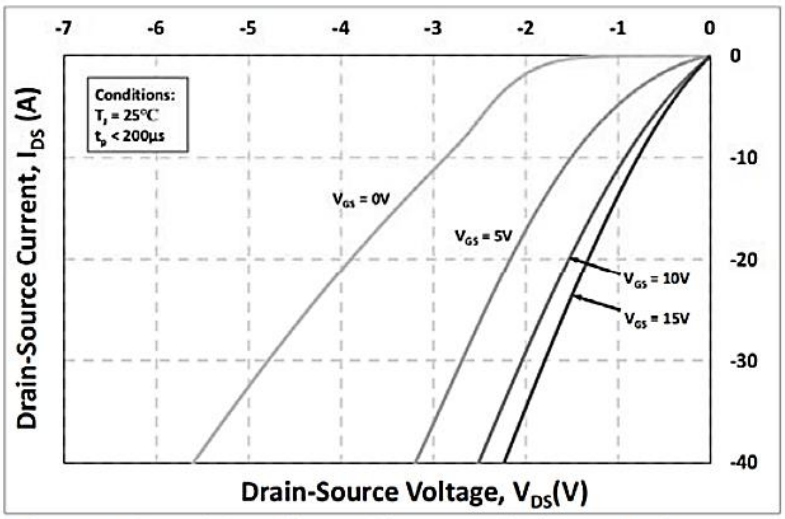


Figure 16. 3rd Quadrant Characteristic at 25°C

TYPICAL PERFORMANCE (For Reference Only)

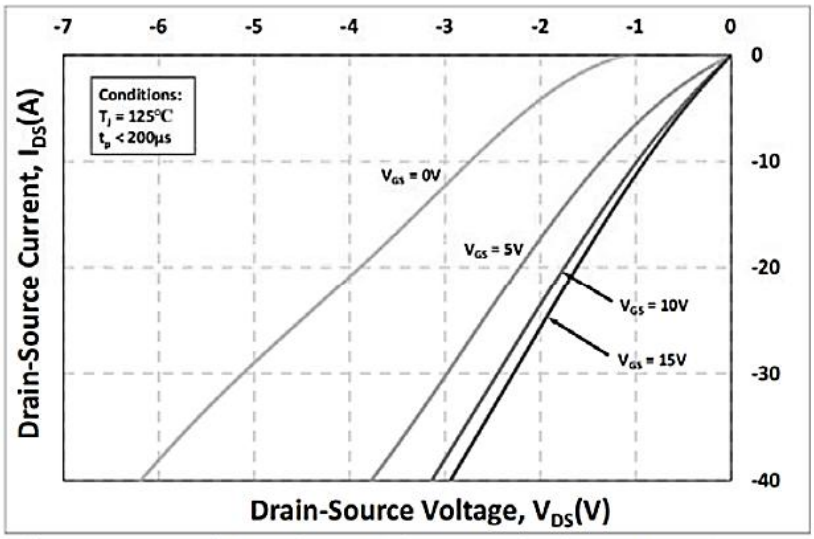


Figure 17. 3rd Quadrant Characteristic at 125°C

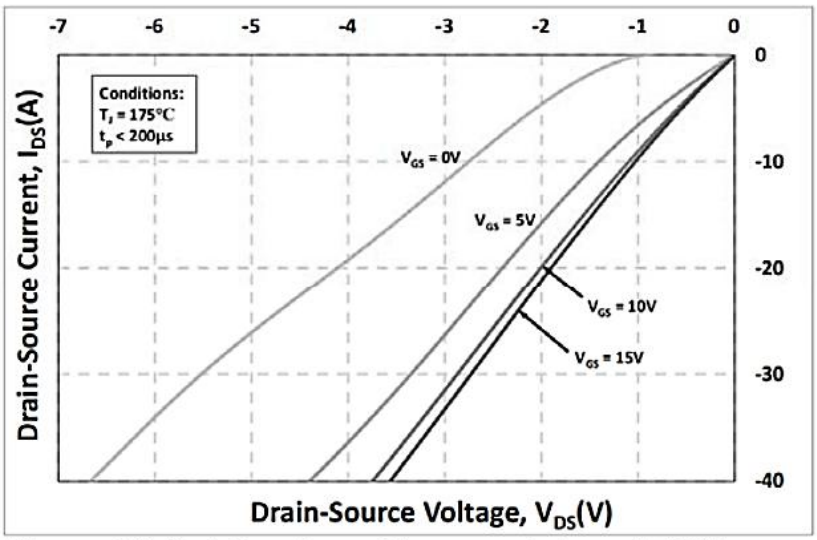


Figure 18. 3rd Quadrant Characteristic at 175°C

TYPICAL PERFORMANCE (For Reference Only)

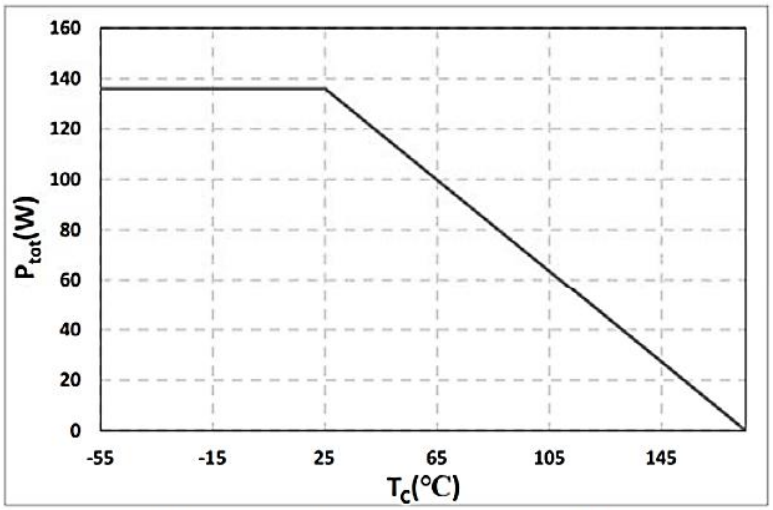


Figure 19. Maximum Power Dissipation Derating vs. Case Temperature

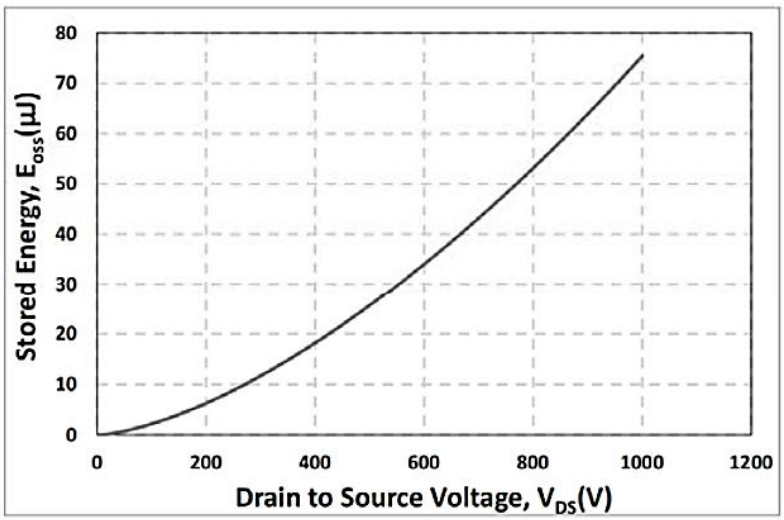


Figure 20. Output Capacitor Stored Energy

TYPICAL PERFORMANCE (For Reference Only)

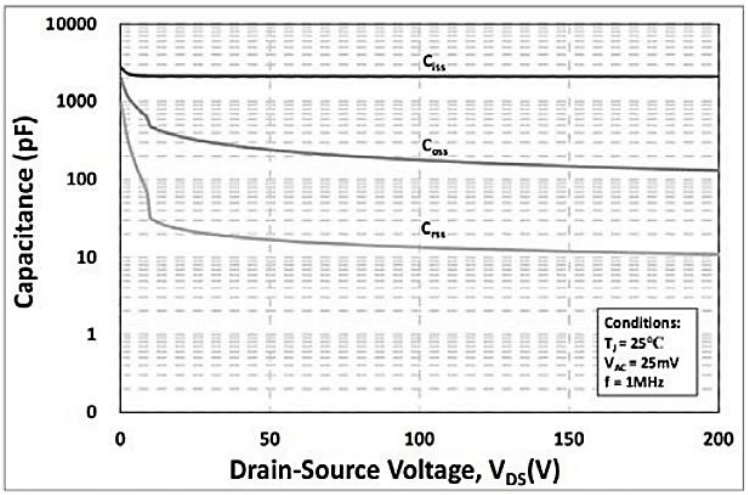


Figure 21. Capacitances vs. Drain-Source Voltage (0 - 200V)

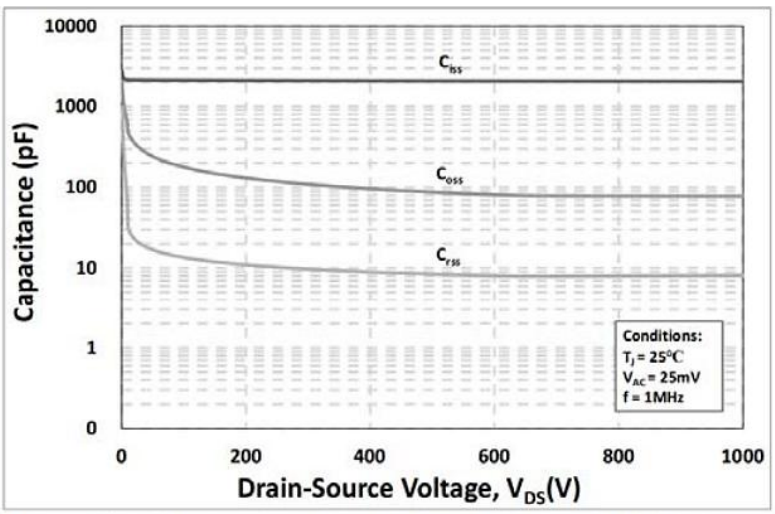
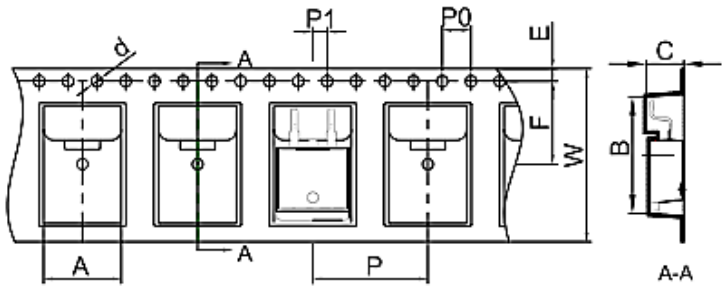
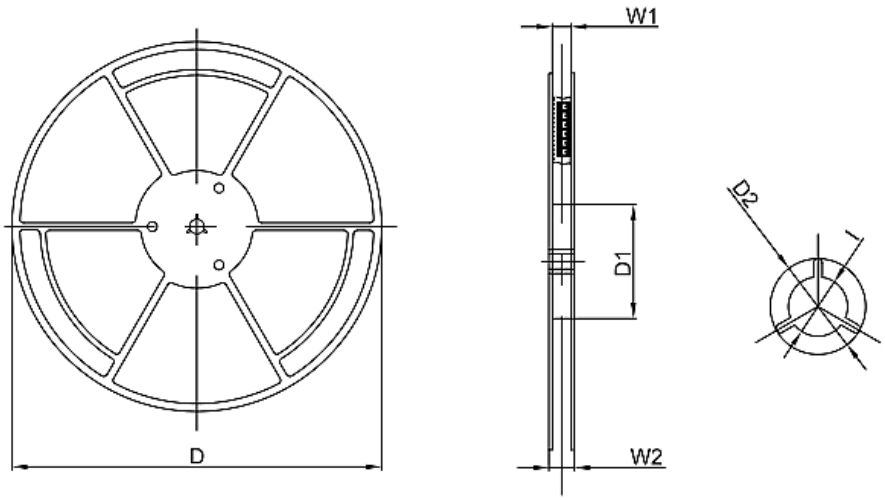


Figure 22. Capacitances vs. Drain-Source Voltage (0 - 1000V)

TAPE/REEL - Unit: mm, All Devices are packed in accordance with EIA standard RS-481-A and specifications



Case	A	B	C	d	E	F	P0	P	P1	W
TO-263-7	10.80	16.13	5.21	Ø1.55	1.75	11.50	4.00	16.00	2.00	24.00



Reel Size	D	D1	D2	W1	W2	I	Qty. (pcs)
13”	330	100	Ø21	24.4	30.4	Ø13.00	800

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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8. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.