NextGen
Components,Inc.

SPECIFICATION SHEET

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

SPECIFICATION SHEET NO.	S1107 – LGE3M70120JL0S	
ORIGINAL MFG/PART NO.	LGE Diodes/LGE3M70120J-L	
NEXTGEN PART CODE	LGE3M70120JL0S	Indicate This Code For RFQ /Order
DATE	Nov. 07, 2025	
REVISION	A3	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	Silicon Carbide (SiC) MOSFET, 7 Pads, Case TO-263-7, LGE3M L Series, AEC-Q101 And PPAP Capable, Drain-Source Voltage (V_{DS}): 1200V Max. Current Drain-source On-state Resistance $R_{DS(ON)}$: 68mΩ Typ. Continuous Drain Current (I_D) @ Tc=25℃: 36A Operating Temperature: -40°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. 07, 2025			

CUSTOMER APPROVE
Date:

MAIN FEATURE

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

- High Blocking Voltage
- High Frequency Operation
- Low On-resistance
- Fast Intrinsic Diode With Low Reverse Recovery
- Higher System Efficiency
- Parallel Device Convenience without Thermal Runaway
- Hard Switching & Higher Reliability
- Easy To Drive
- 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

- Motor Drives
- Solar / Wind Inverters
- EV Charging Station
- AC/DC Converters
- DC/DC Converters
- Uninterruptable Power Supplies

ELECTRICAL CHARACTERISTICS

- See Page 5 ~ Page 8.
- All Products Parameters are Subject To NextGen Components' Final Confirmation.

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code LGE3M70120JL0S For RFQ and Order.

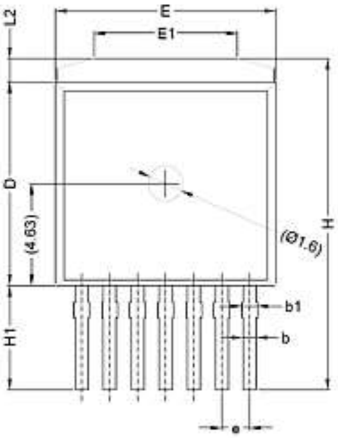
PART CODE GUIDE

RFQ
Request For Quotation

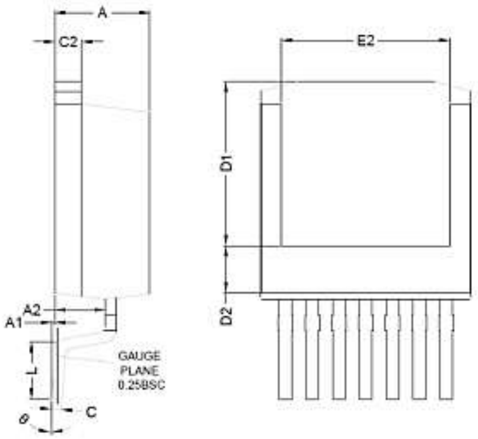
CODE	NAME	KEY SPECIFICATION OPTION
LGE3M	Product Series Code	Silicon Carbide (SiC) MOSFET, 7 Pads, Case TO-263-7, LGE3M L Series
70	Current Drain-source On-state Resistance RDS(ON) Code	70: 68mΩ
120	Drain-Source Voltage (V_{DS}) Code	120: 1200V Max.
J	Package Case Code	B: TO-247-3; E: TO-263-2; J: TO-263-7; 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

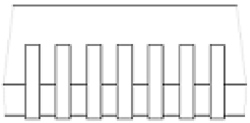
DIMENSION - - Unit: (mm), Case TO-263-7 Outline

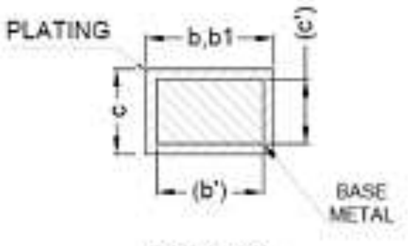
Top View



Side View







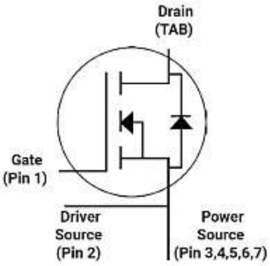
SECTION B-B

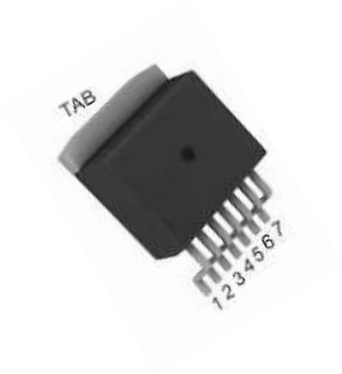
SYMBOL	TO-263-7	
	Min.	Max.
A	4.30	4.70
A1	-	0.25
A2	2.20	2.60
b	0.52	0.72
b’	0.50	0.70
b1	0.60	0.80
c	0.42	0.62
c’	0.40	0.60
c2	1.07	1.47
D	9.05	9.45
D1	7.58	7.98
D2	2.05	2.45
e	1.27 BSC	
E	9.80	10.20
E1	6.30	6.70
E2	7.80	8.20
L	2.48	2.88
L2	0.87	1.27
H	14.87	15.27
H1	4.55	4.95
Θ	0°	8°

Note:

1. Dimensioning & Tolerancing Confirm To ASME Y14.5M-1994.
2. Radius on terminal is optional.
3. General Tolerance-linear ±0.05.
4. Plastic Body Radius: Max 0.25 Unless Otherwise Specified.
5. Plastic Body Finishing: Matt Finishing Ra=1.8-2.2 Microns.
6. Mismatch Max.=0.05 (Cavity To Hole Axis)
7. Dimension Do Not Include Burr Or Mold Flash.

INTERNAL CIRCUIT DIAGRAM





1200V SiC MOSFET

VDS	ID @ Tc=25°C	R DS(on)	MARKING	PACKAGE/CASE
1200V	36A	68mΩ	LGE3M70120J	TO-263-7

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

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Drain-Source Voltage	$V_{DS, Max}$		1200	V
Gate-Source Voltage (Dynamic)	$V_{GS, MAX}$	T_{surge} <100ns	-10/+25	V
Gate-Source Voltage (Static)	V_{Gsop}		-5/+20	V
Continuous Drain Current	I_D	VGS=20V, Tc=25°C	36	A
		VGS=20V, Tc=100°C	25	
Pulsed Drain Current	$I_{D (pulse)}$	TC=25°C	85	A
Avalanche Energy	E_{AS}	VDD = 100V, VGS=20V, L=2mH	256	mJ
Avalanche Peak Current	I_{AV}	VDD = 100V, VGS=20V, L=2mH	16	A
Total Power Dissipation	P_D	TC=25°C	192	W
Operating Junction Temperature Range	$T_{J,}$		-40~ +175	°C
Storage Temperature Range	T_{STG}		-40~ +175	°C

ELECTRICAL CHARACTERISTICS PART I - @T_C=25 °C (Unless Otherwise Specified)

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=100μA	1200	-	-	V
Gates Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=5mA	1.8	2.6	3.6	V
		V_{DS}=V_{GS},I_D=5mA, T_J=150°C	-	1.9	-	
		V_{DS}=V_{GS},I_D=5mA, T_J=175℃	-	1.8	-	
Zero Gates Voltage Drain Current	I_{DSS}	V_{DS}=1200V, V_{GS}=0V	0	1	50	μA
Gates-Source Leakage Crurent	I_{GSS}	V_{GS}=20V, V_{DS}=0V	0	1	200	nA
Gates-Source Leakage Crurent	I_{GSS}	V_{GS}=-5V, V_{DS}=0V	-200	-1	0	nA
Drain-source On-state Resistance	$R_{DS(ON)}$	V_{GS}=20V, I_D=20A	-	68	85	mΩ
		V_{GS}=20V, I_D=20A T_J=150°C	-	108	-	
		V_{GS}=20V, I_D=20A T_J=175°C	-	122	-	
Transconductance	g_{fs}	V_{DS}=20V, I_{DS}=20A	-	10.3	-	S
		V_{DS}=20V, I_{DS}=20A, T_J=150°C	-	9.7		
		V_{DS}=20V, I_{DS}=20A, T_J=175°C	-	9.6	-	
Input Capacitance	C_{ISS}	V_{DS}=1000V, V_{GS}=0V f = 1MHz	-	1340	-	pF
Output Capacitance	C_{OSS}		-	63	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	4	-	pF
C_{oss} Stored Energy	E_{OSS}		-	41	-	μJ

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

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Total Gate Charge	Q_g	V_{DS} =800V, V_{GS} =-5/20V I_D =20A	-	69	-	nC
Gate-Source Charge	Q_{gs}		-	20	-	
Gate-Drain Charge	Q_{gd}		-	24	-	
Internal Gate Input Resistance	$R_{g(int)}$	f = 1MH, I_D=0A		2.5		Ω
Series Inductance	L_S	f = 1MHz		4.5		nH
Turn - On Switching Energy	E_{on}	V_{DS} = 800 V, V_{GS} =-5V/20V, I_D = 20A, $R_{G(ext)}$ =2Ω, L=100µH		210		µJ
Turn - Off Switching Energy	E_{off}			25		µJ
Turn - On Delay Time	$t_{d(on)}$			10		ns
Rise Time	t_r			9		ns
Turn - Off Delay Time	$t_{d(off)}$			21		ns
Fall Time	t_f			9		ns

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

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Diode Forward Voltage	V_{SD}	V_{GS} =-5V, I_{SD} =10A	-	4.4	-	V
		V_{GS} = -5V, I_{SD} = 10A, T_J = 150℃	-	4.0	-	
		V_{GS} = -5V, I_{SD} = 10A, T_J = 175℃	-	3.9	-	
Continuous Diode Forward Current	I_S	V_{GS} =-5V	-	-	31	A
Reverse Recovery Time	T_{rr}	V_{GS} = -5V, I_{SD} = 20A, V_R= 800V, dif/dt =3100A/µs	-	22	-	nS
Reverse Recovery Charge	Q_{rr}		-	160	-	nC
Peak Reverse Recovery Current	I_{rrm}		-	17	-	A

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			MIN.	TYP.	MAX.	
Thermal Resistance	$R_{th(j-c)}$	Junction-case	-	0.64	0.78	°C/W

TYPICAL PERFORMANCE (For Reference Only)

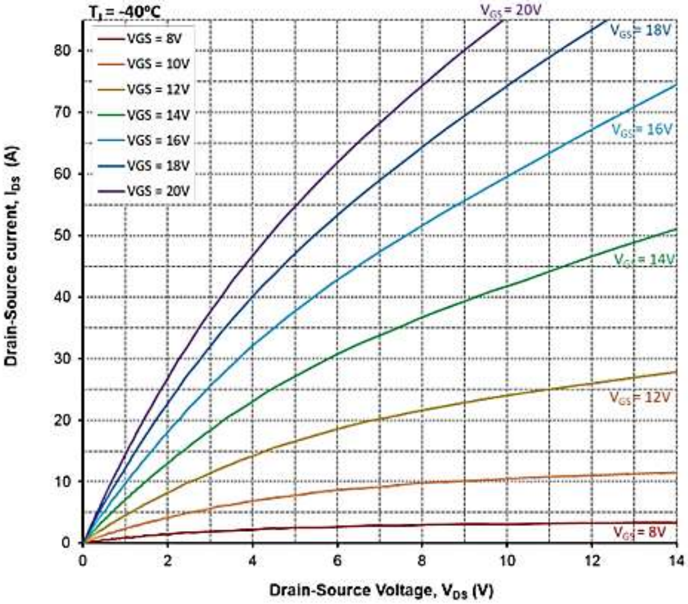


Figure 1. Output Characteristics, T$_J$ = -40°C

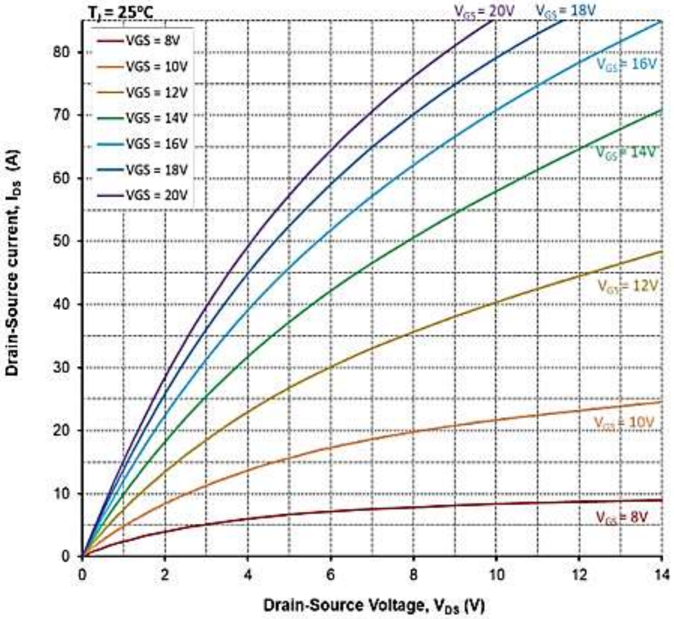


Figure 2. Output Characteristics, T$_J$ = 25°C

TYPICAL PERFORMANCE (For Reference Only)

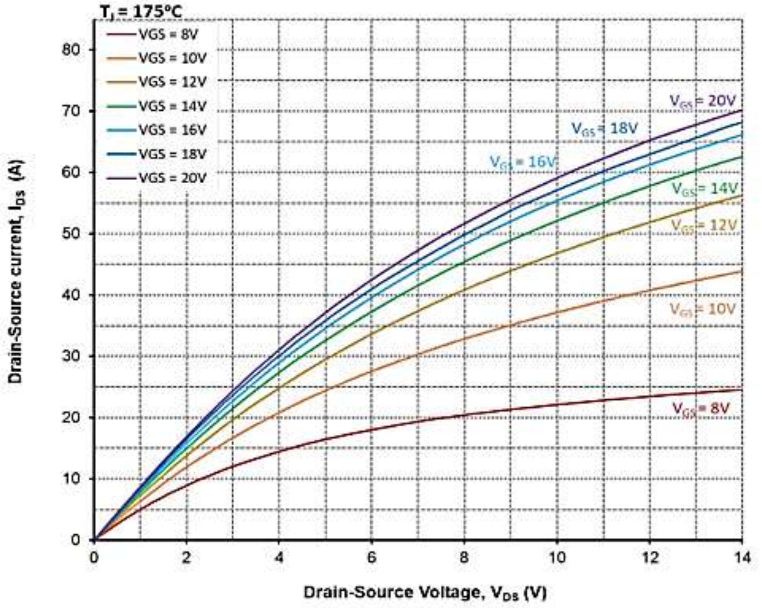


Figure 3. Output Characteristics, T_J = 175°C

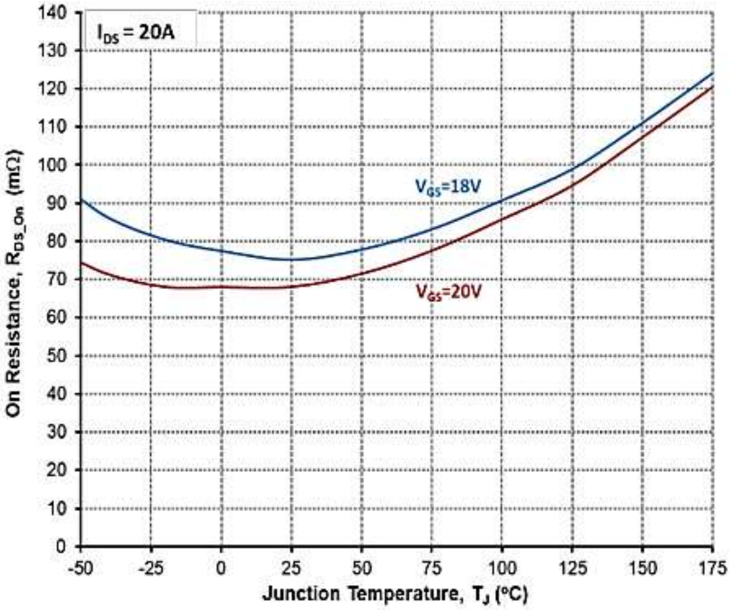


Figure 4. On-Resistance vs. Temperature

TYPICAL PERFORMANCE (For Reference Only)

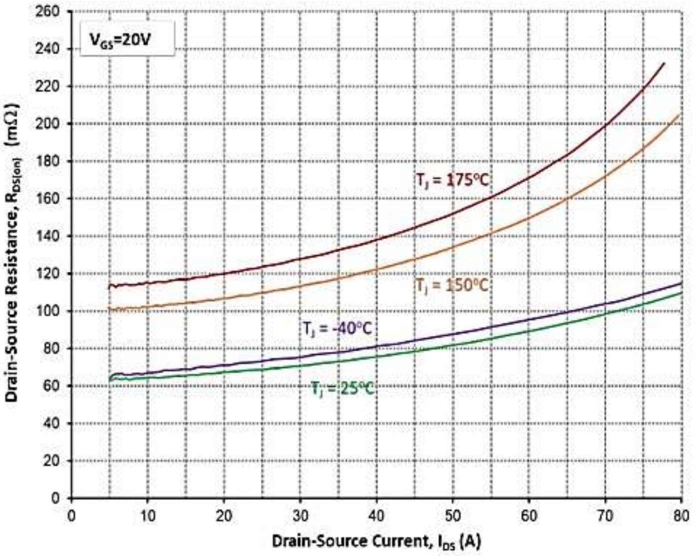


Figure 5. On-Resistance vs. Drain Current For Various Temperatures

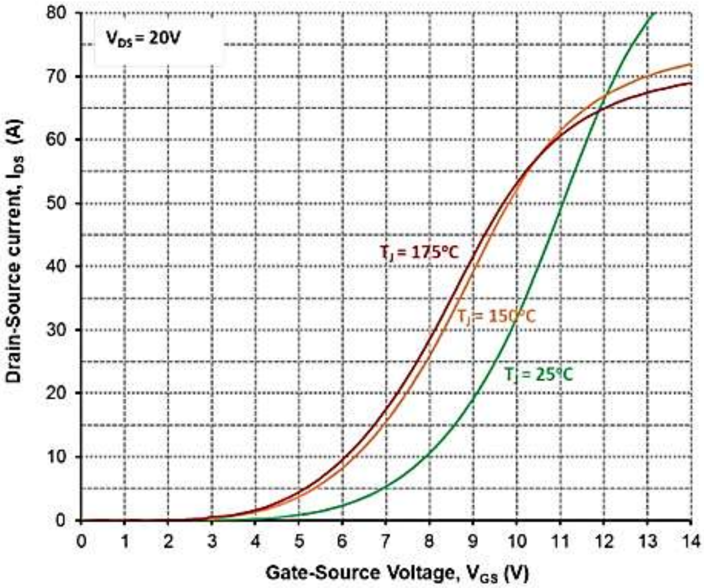


Figure 6. Transfer Characteristic For Various Junction Temperatures

TYPICAL PERFORMANCE (For Reference Only)

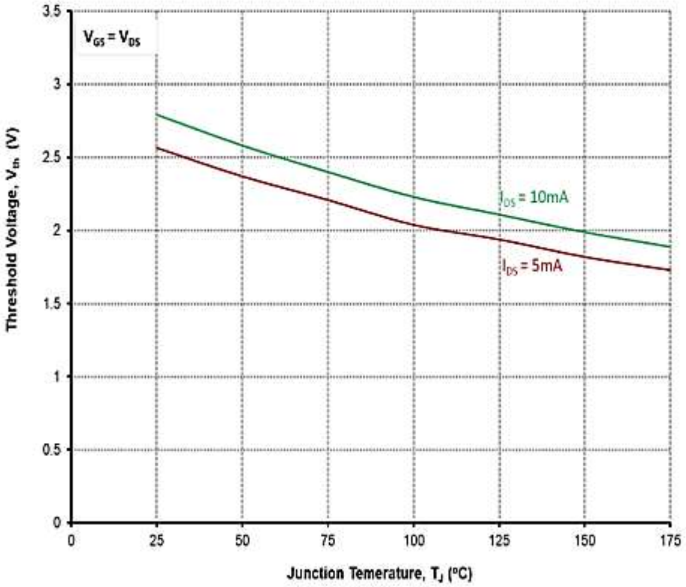


Figure 7. Threshold Voltage vs. Temperature

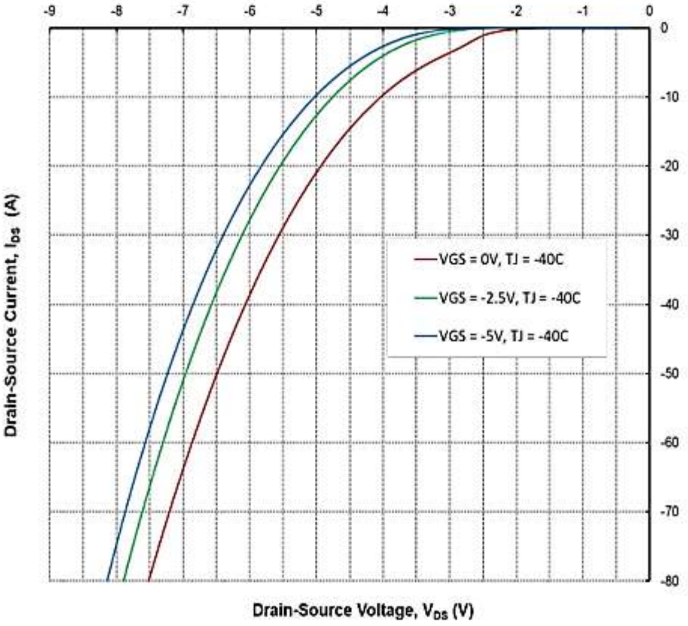


Figure 8. Body Diode Characteristics @ -40°C

TYPICAL PERFORMANCE (For Reference Only)

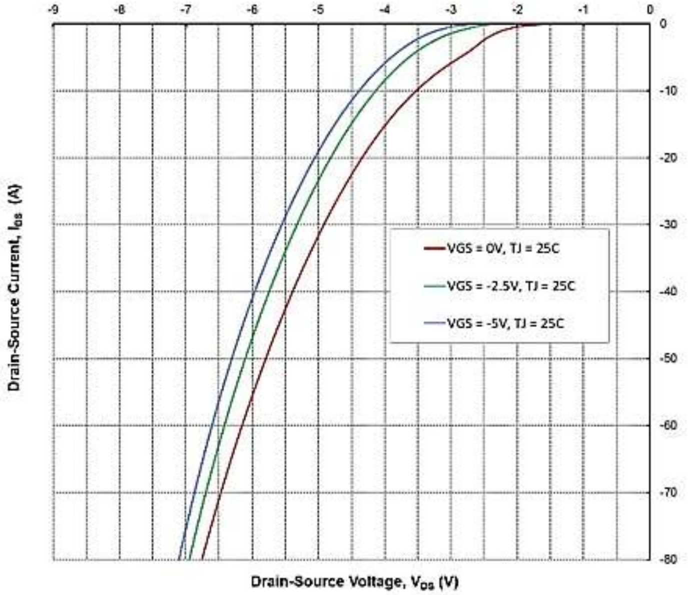


Figure 9. Body Diode Characteristics @ 25°C

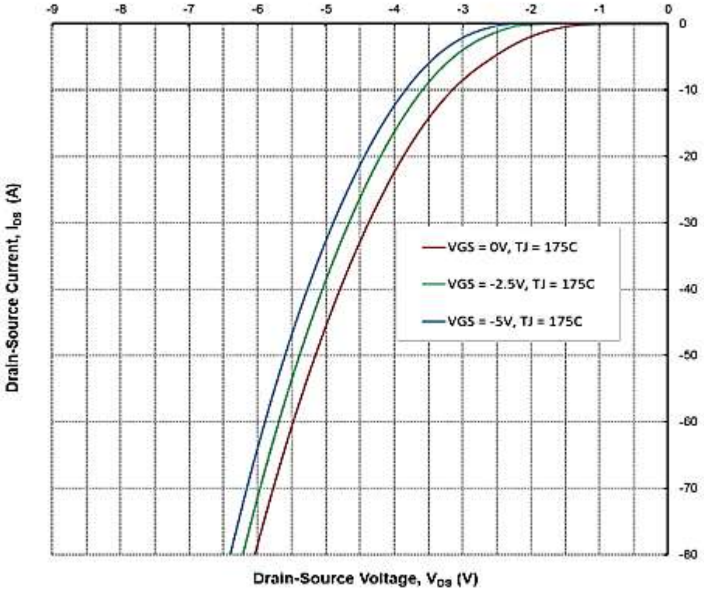


Figure 10. Body Diode Characteristics @ 175°C

TYPICAL PERFORMANCE (For Reference Only)

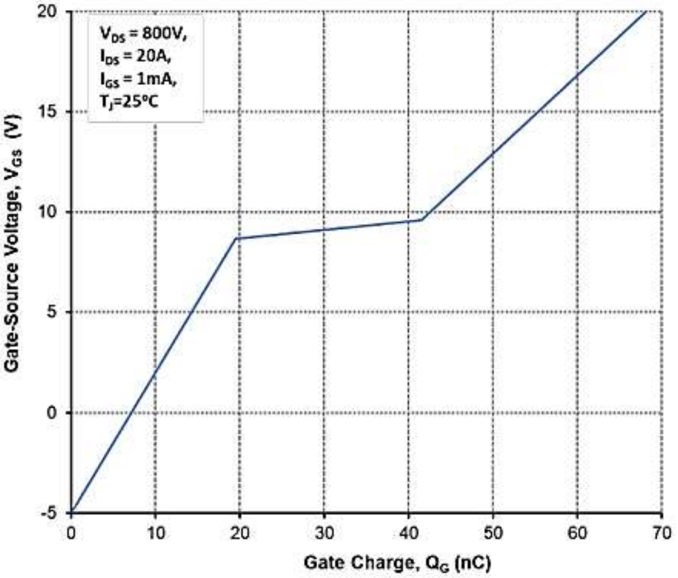


Figure 11. Gate Charge Characteristics

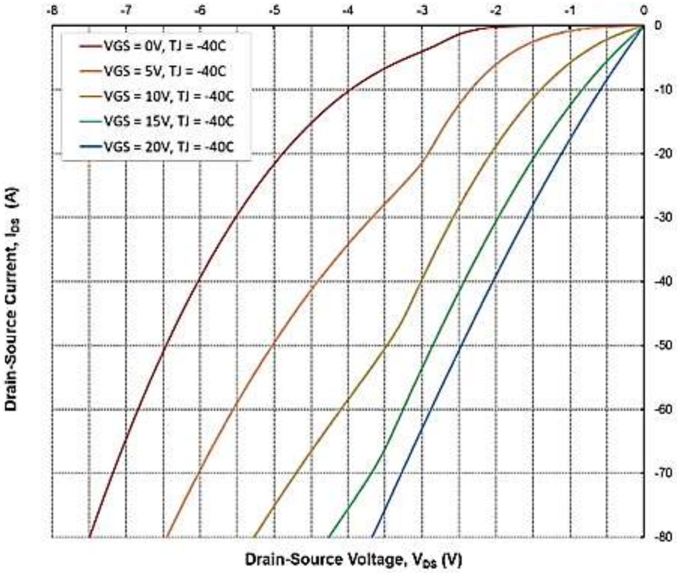


Figure 12. 3rd Quadrant Characteristics @ -40°C

TYPICAL PERFORMANCE (For Reference Only)

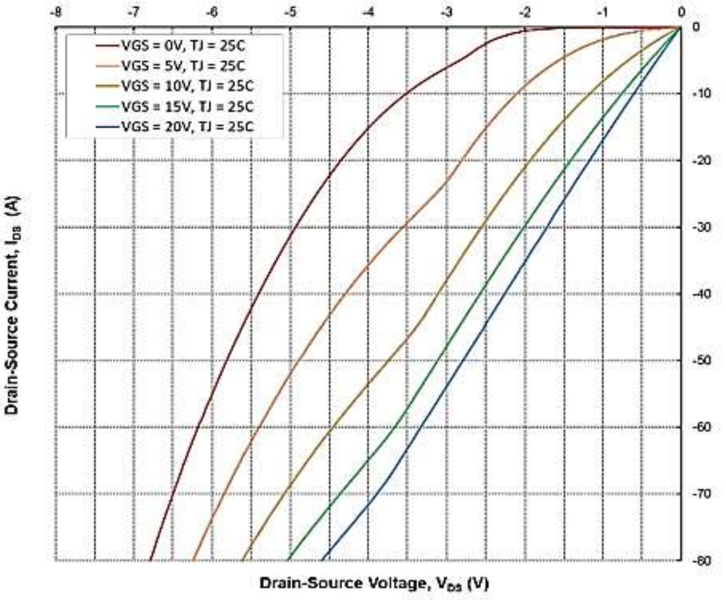


Figure 13. 3rd Quadrant Characteristics @ 25°C

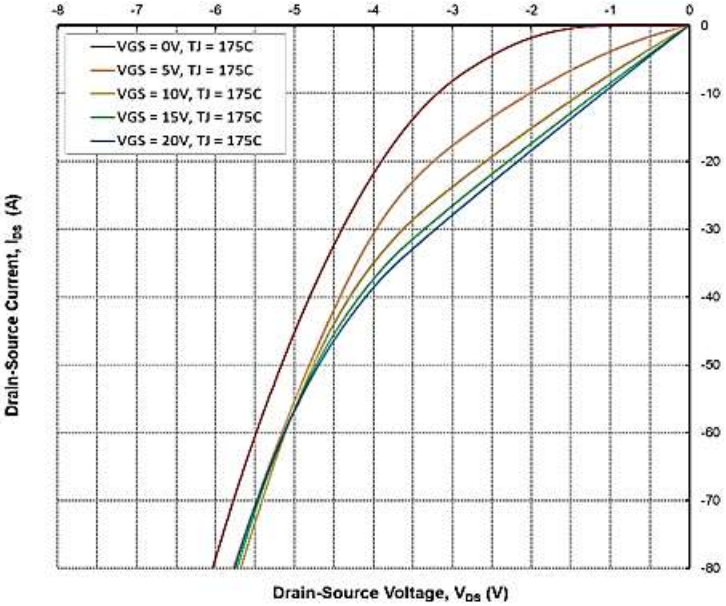


Figure 14. 3rd Quadrant Characteristics @ 175°C

TYPICAL PERFORMANCE (For Reference Only)

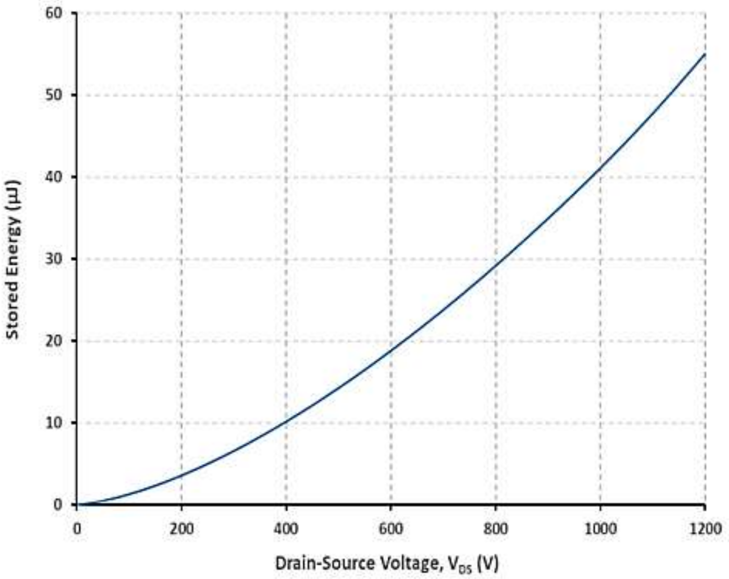


Figure 15. Output Capacitor Stored Energy

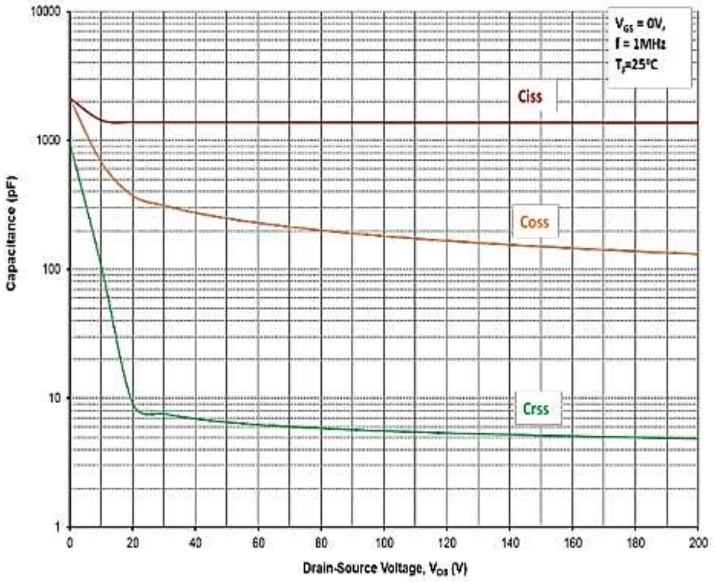


Figure 16. Capacitances vs. Drain-Source Voltage (0-200V)

TYPICAL PERFORMANCE (For Reference Only)

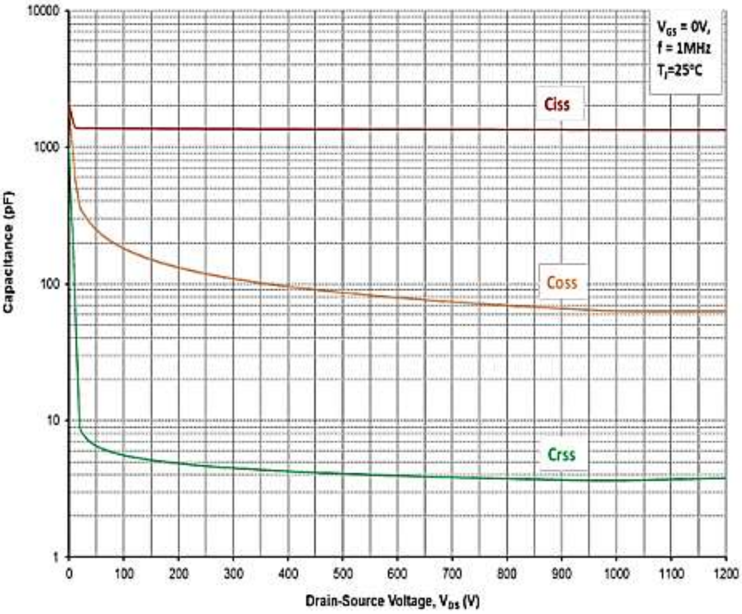


Figure 17. Capacitances vs. Drain-Source Voltage (0-1200V)

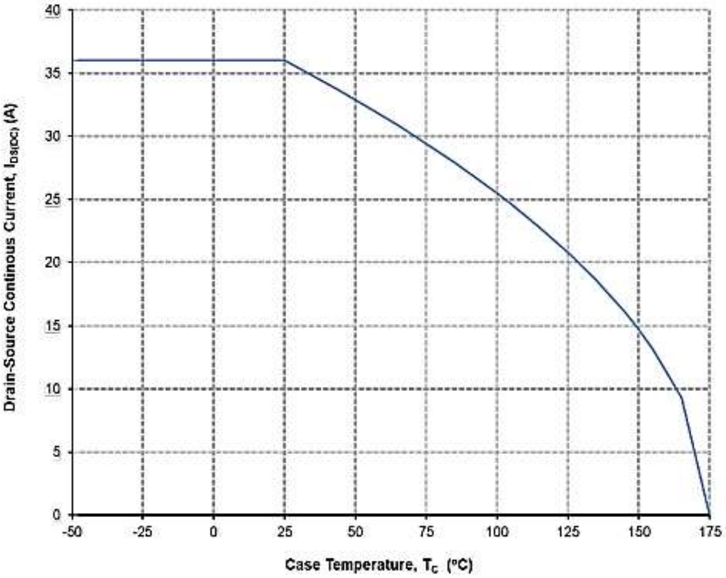


Figure 18. Continuous Drain Current Derating vs. Case Temperature

TYPICAL PERFORMANCE (For Reference Only)

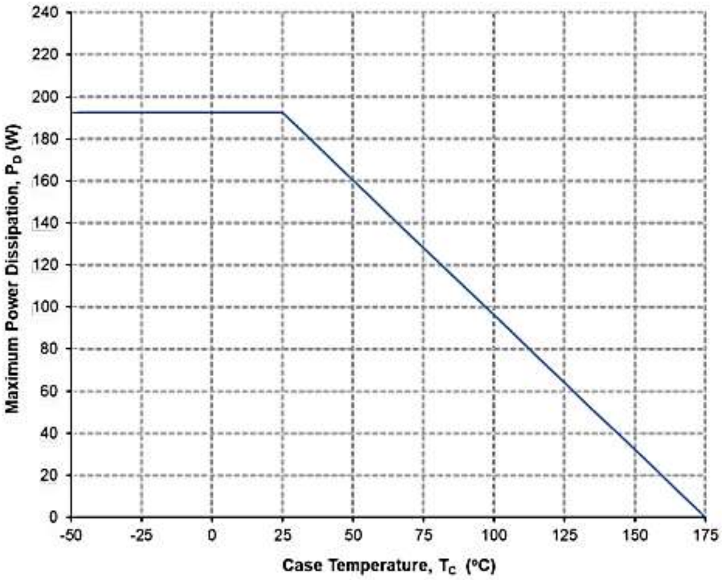


Figure 19. Maximum Power Dissipation Derating vs. Case Temperature

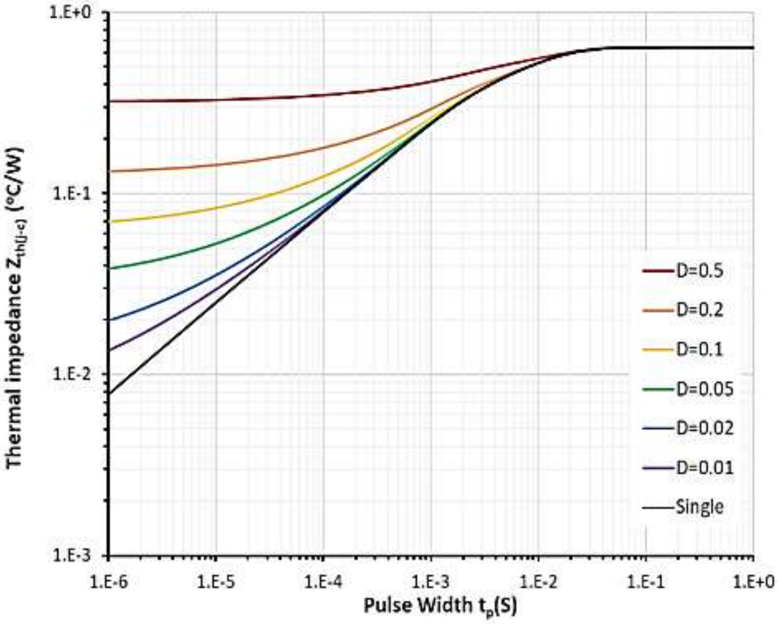


Figure 20. Transient Thermal Impedance (Junction to Case)

TYPICAL PERFORMANCE (For Reference Only)

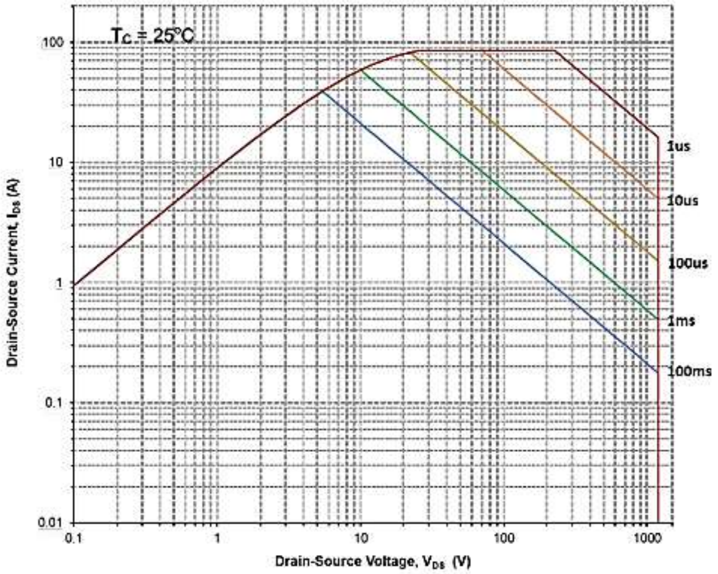


Figure 21. Safe Operating Area

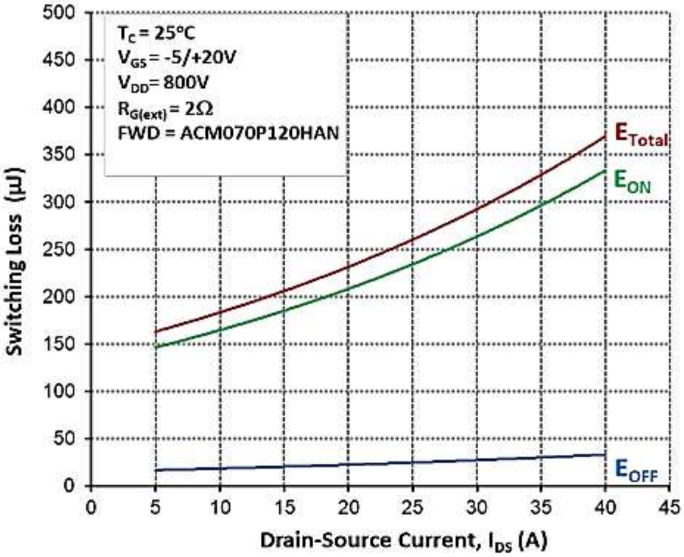


Figure 22. Switching energy vs Drain current

TYPICAL PERFORMANCE (For Reference Only)

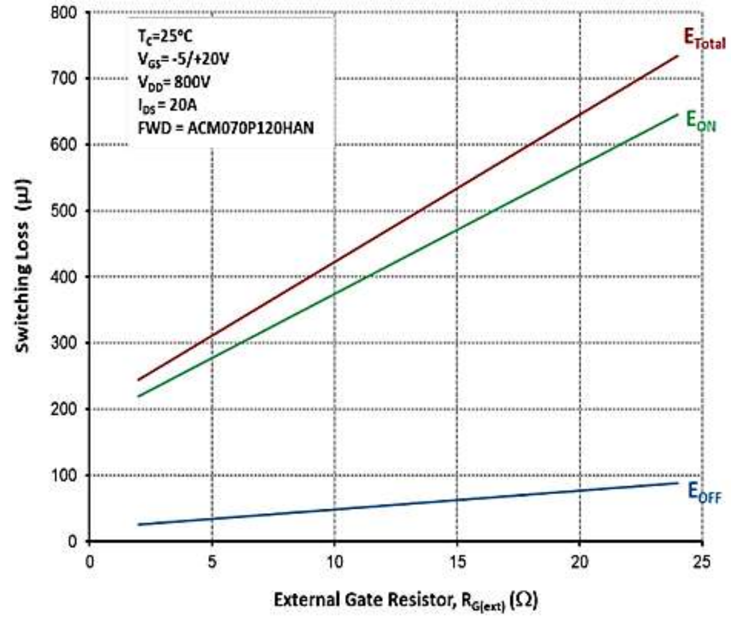


Figure 23. Switching energy vs External Gate Resistor

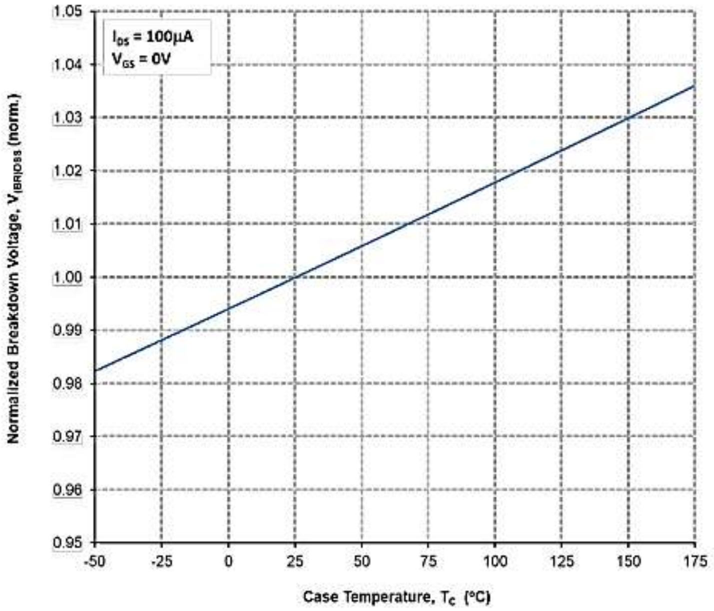
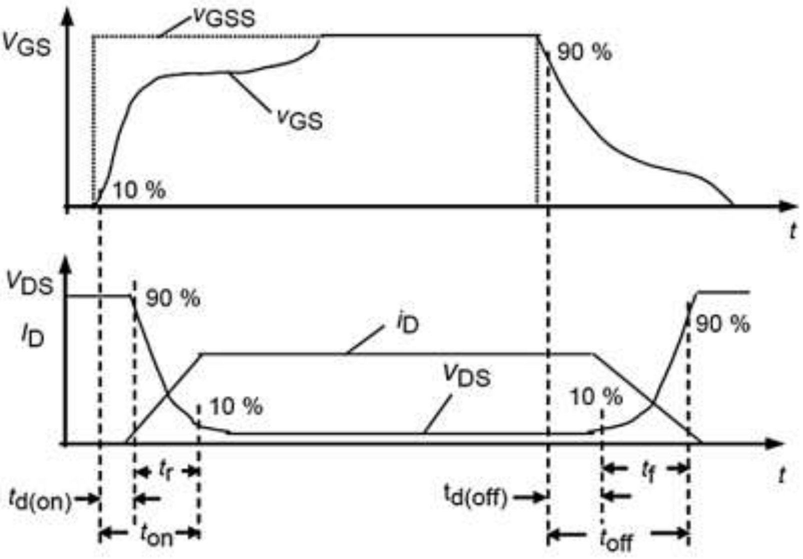
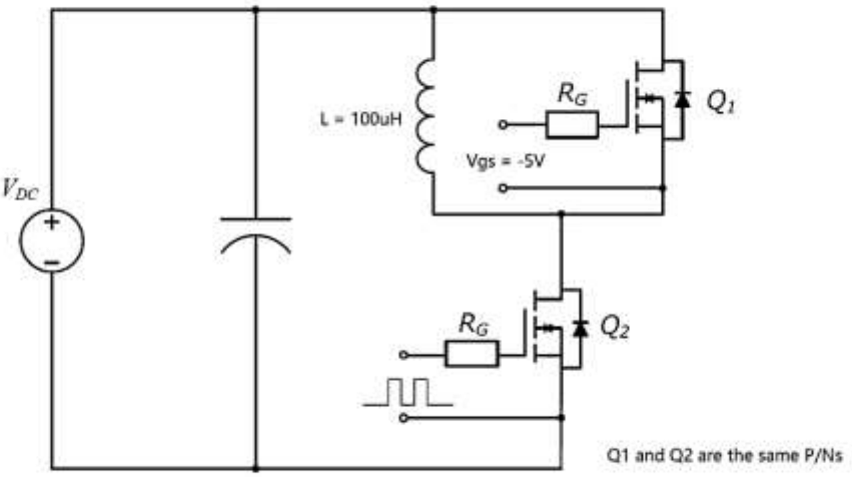


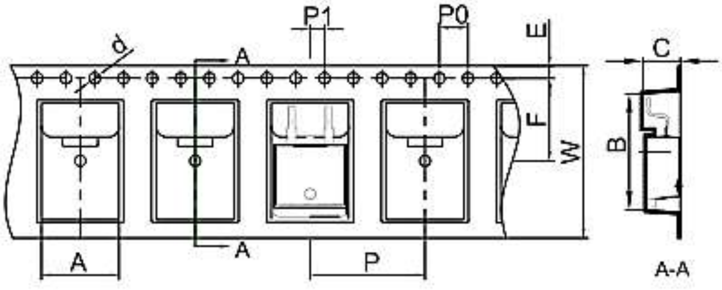
Figure 24. Normalized breakdown voltage vs Temperature

SWITCHING TIMES DEFINITION AND TEST CIRCUIT

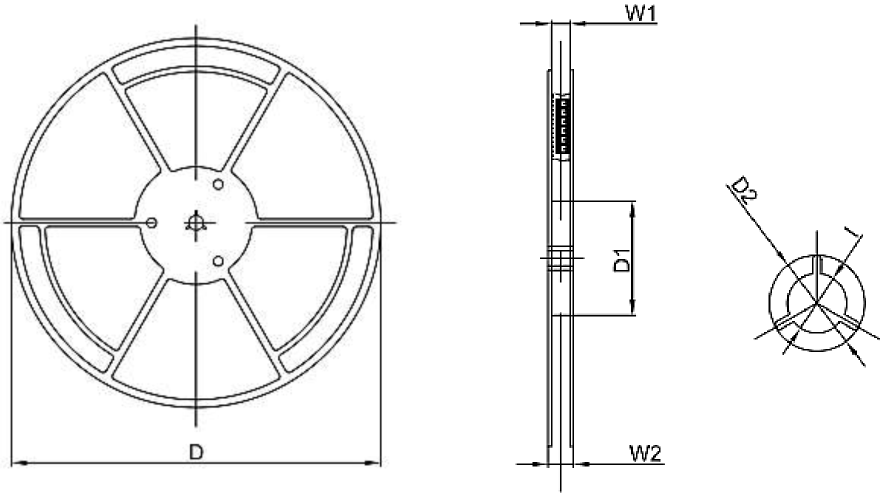




TAPE/REEL - Unit: mm, All Devices are packed in accordance with EIA standard RS-481-A and specifications



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.
4. NextGen Component, Inc (*NextGen*) reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.
5. *NextGen* makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does *NextGen* assume any liability for application assistance or customer product design.
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7. *NextGen* products are not authorized for use as critical components in life support devices or systems without express written approval by *NextGen.*
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.