

SPECIFICATION SHEET NO.	S1107 – LGE3M160120ELS	
ORIGINAL MFG/PART NO.	 LGE Diodes/LGE3M160120E-L	
NEXTGEN PART CODE	LGE3M160120ELS	Indicate This Code For <a href="#">RFQ</a> /Order
DATE	Nov. 07, 2025	
REVISION	A3	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	<p>Silicon Carbide (SiC) MOSFET, 3 Pads, Case TO-263-2, LGE3M L Series,            Drain-Source Voltage (V<sub>DS</sub>): 1200V Max.            Current Drain-source On-state Resistance R<sub>DS(ON)</sub>: 160mΩ Typ.            Continuous Drain Current (I<sub>D</sub>) @ T<sub>c</sub>=25°C: 17A            Operating Temperature: -55°C ~ 150°C (T<sub>J</sub>)            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)</p>	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

<b>VENDOR APPROVE</b>		
Issued/Checked/Approved		
		
Effective Date: Nov. 07, 2025		

<b>CUSTOMER APPROVE</b>	
Date:	

## MAIN FEATURE

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitances
- Easy to Parallel and Simple to Drive
- Avalanche Ruggedness
- 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)



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



## APPLICATION

- Solar Inverters
- Switch Mode Power Supplies
- High Voltage DC/DC Converters
- Battery Chargers
- Motor Drives
- Pulsed Power applications

## 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 LGE3M160120ELS For RFQ and Order.

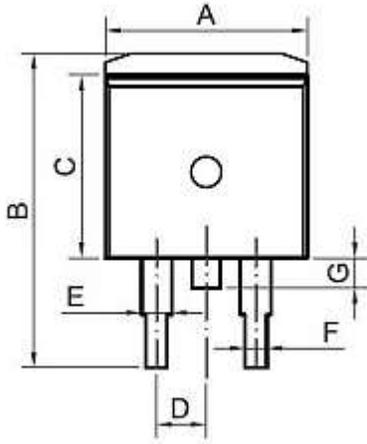
PART CODE GUIDE

**RFQ**  
Request For Quotation

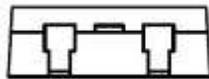
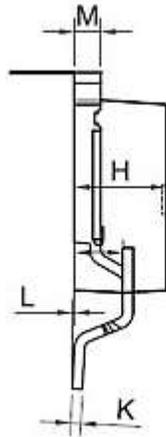
CODE	NAME	KEY SPECIFICATION OPTION
LGE3M	Product Series Code	Silicon Carbide (SiC) MOSFET, 3 Pads, Case TO-263-2, LGE3M L Series
160	Current Drain-source On-state Resistance RDS(ON) Code	160: 160mΩ
120	Drain-Source Voltage (Vds ) Code	120: 1200V Max.
E	Package Case Code	B: TO-247-3; E: TO-263-2; J: TO-263-7; Q: TO-247-4;
LS	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-263-2 Outline

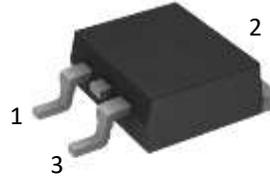
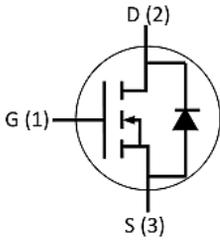
Top View



Side View



SYMBOL	TO-263-2		
	Min.	Typ.	Max.
A	9.90	-	10.20
B	14.70	-	15.80
C	9.40	-	9.60
D	-	2.54	-
E	1.20	-	1.40
F	0.75	-	0.85
G	-	-	1.75
H	4.40	-	4.70
J	2.30	-	2.70
K	0.38	-	0.55
L	0	0.10	0.25
M	1.25	-	1.35

**INTERNAL CIRCUIT DIAGRAM**

**1200V SiC MOSFET**

V <sub>DS</sub>	I <sub>D</sub> @ T <sub>c</sub> =25°C	R <sub>DS(on)</sub>	MARKING	PACKAGE/CASE
1200V	17A	160mΩ	LGE3M160120E	TO-263-2

**MAX. RATINGS @T<sub>c</sub>=25 °C (Unless Otherwise Specified)**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Drain-Source Voltage	V <sub>DS, Max</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =100μA	1200	V
Gate-Source Voltage	V <sub>GS, MAX</sub>	Absolute maximum values	-10/+25	V
Gate-Source Voltage	V <sub>Gsop</sub>	Recommended operational values	-5/+20	V
Continuous Drain Current	I <sub>D</sub>	V <sub>GS</sub> =20V, T <sub>c</sub> =25°C	17	A
		V <sub>GS</sub> =20V, T <sub>c</sub> =100°C	11	
Pulsed Drain Current	I <sub>DM</sub>	Pulse width limited by T <sub>jmax</sub>	38	A
Power Dissipation Note Fig.10	P <sub>D</sub>	T <sub>c</sub> =25°C, T <sub>j</sub> =150°C	127	W
Operating Junction Temperature Range	T <sub>J</sub>		-55~ +150	°C
Storage Temperature Range	T <sub>STG</sub>		-55~ +150	°C

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

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Drain-Source Breakdown Voltage	V (BR) DSS	VGS=0V, ID=100μA	1200	-	-	V
Gates Threshold Voltage Note Fig.6	V GS(th)	VDS=VGS, IDS=2.5mA, Tc=25°C	2.0	2.4	4.0	V
		VDS=VGS, IDS=2.5mA, Tc=150°C	-	1.8	-	
Zero Gates Voltage Drain Current	I DSS	VDS=1200V, VGS=0V	-	1	100	μA
Gates-Source Leakage Current	I GSS	VGS=20V, VDS=0V	-	20	200	nA
Drain-source On-state Resistance Note Fig.4	R DS (ON)	VGS=20V, ID=10A Tc=25°C	-	160	192	mΩ
		VGS=20V, ID=10A Tc=150°C	-	285	-	
Transconductance Note Fig.5	g fs	VGS=20V, ID=10A TJ=25°C	-	4.2	-	S
		VGS=20V, ID=10A TJ=150°C	-	4.0	-	
Input Capacitance Note Fig.8	C ISS	VGS=0V, VDS=1000V F=1MHz VAC=25mV	-	950	-	pF
Output Capacitance Note Fig.8	C OSS		-	35	-	pF
Reverse Transfer Capacitance Note Fig.8	C RSS		-	8.5	-	pF

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

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Turn - On Switching Energy	E <sub>on</sub>	V <sub>DS</sub> = 800 V, V <sub>GS</sub> = -5V/20V, I <sub>D</sub> = 10A, R <sub>G(ext)</sub> = 2.5Ω, L = 256μH		95		μJ
Turn - Off Switching Energy	E <sub>off</sub>			48		μJ
Turn - On Delay Time	t <sub>d (on)</sub>	V <sub>DS</sub> = 800 V, V <sub>GS</sub> = -5V/20V, I <sub>D</sub> = 10A, R <sub>G(ext)</sub> = 2.5Ω, R <sub>L</sub> = 80Ω , Timing relative to V <sub>DS</sub>		12		ns
Rise Time	t <sub>r</sub>			20		ns
Turn - Off Delay Time	t <sub>d (off)</sub>			15		ns
Fall Time	t <sub>f</sub>			10		ns
Internal Gate Resistance	R <sub>G(int)</sub>		f = 1MHz, V <sub>AC</sub> = 25mV		5.8	
Gate-Source Charge Note Fig.9	Q <sub>gs</sub>	V <sub>DD</sub> = 800V, V <sub>GS</sub> = -5/20 V I <sub>D</sub> = 10A		9		nC
Gate-Drain Charge Note Fig.9	Q <sub>gd</sub>			17		nC
Total Gate Charge Note Fig.9	Q <sub>g</sub>			42		nC

**REVERSE DIODE CHARACTERISTICS -  $T_c = 25^\circ \text{C}$  (Unless Otherwise Specified)**

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Diode Forward Voltage Note Fig.7	$V_{SD}$	$V_{GS} = -5V, I_{SD} = 5A$ $T_J = 25^\circ\text{C}$	-	3.5	-	V
		$V_{GS} = -5V, I_{SD} = 5A,$ $T_J = 150^\circ\text{C}$	-	3.3	-	
Continuous Diode Forward Current	$I_S$	$T_c = 25^\circ\text{C}$	-	-	17	A
Reverse Recovery Time	$T_{rr}$	$V_{GS} = -5V,$ $I_{SD} = 10A,$ $V_R = 800V,$ $dif/dt = 1000A/\mu s$	-	14	-	nS
Reverse Recovery Charge	$Q_{rr}$		-	44	-	nC
Peak Reverse Recovery Current	$I_{rrm}$		-	6.0	-	A

**THERMAL CHARACTERISTICS**

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			MIN.	TYP.	MAX	
Thermal Resistance Note Fig.11	$R_{th(j-c)}$	Junction-case	-	0.98	-	$^\circ\text{C/W}$
Thermal Resistance	$R_{th(j-a)}$	Junction to Ambient	-	40	-	

TYPICAL PERFORMANCE (For Reference Only)

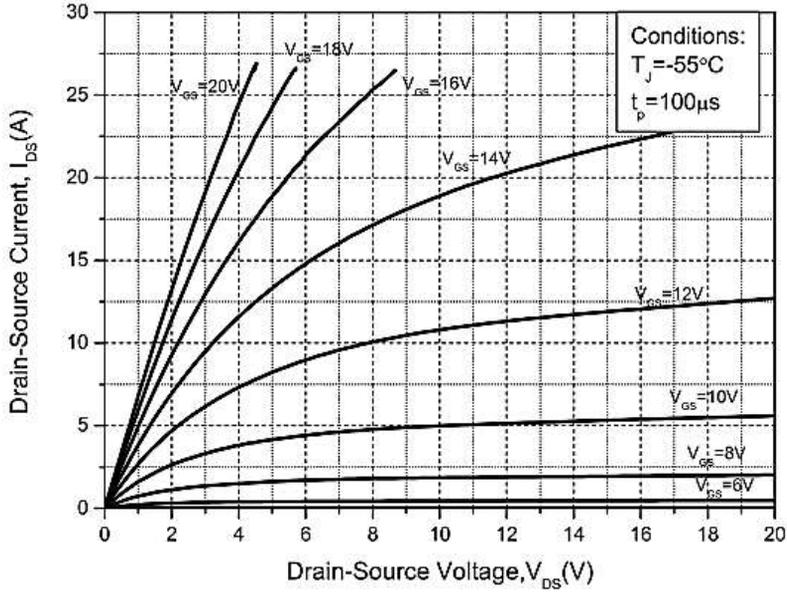


Figure 1. Output Characteristics  $T_J = -55^\circ\text{C}$

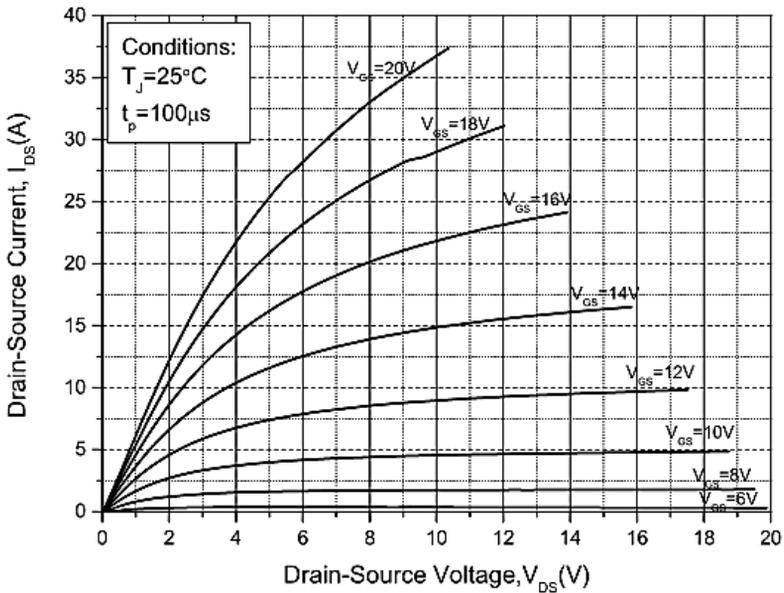


Figure 2. Output Characteristics  $T_J = 25^\circ\text{C}$

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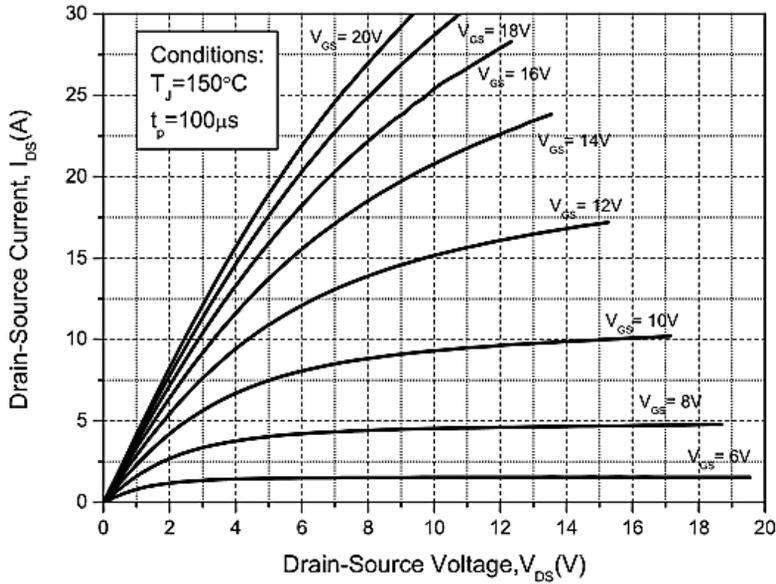


Figure 3. Output Characteristics  $T_j = 150^\circ\text{C}$

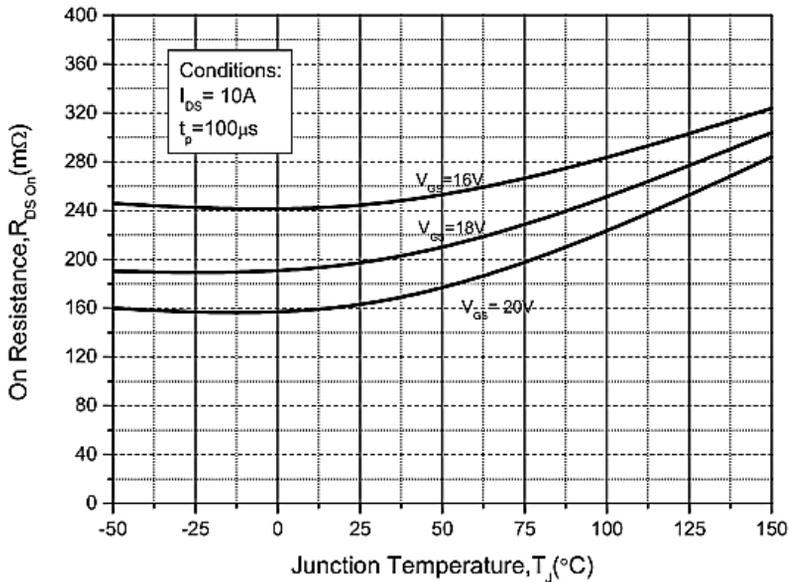


Figure 4. On-Resistance For Various Gate Voltage

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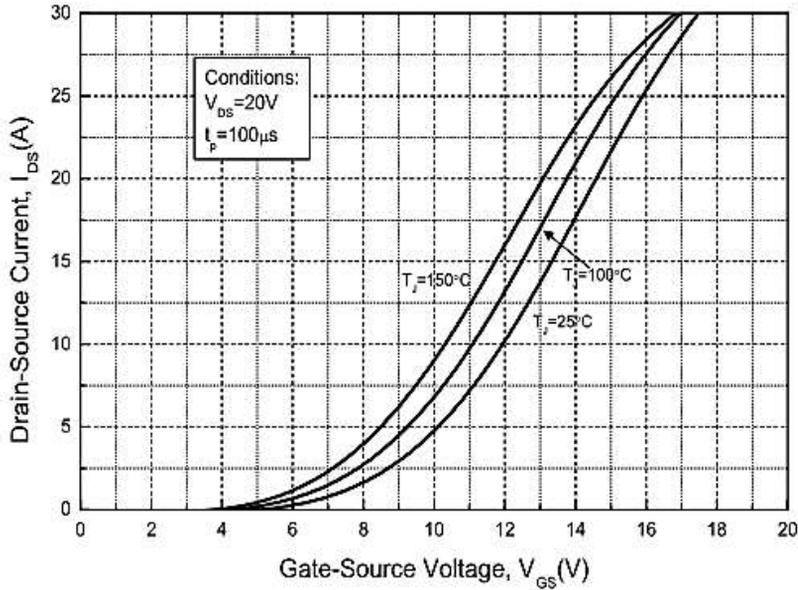


Figure 5. Transfer Characteristic

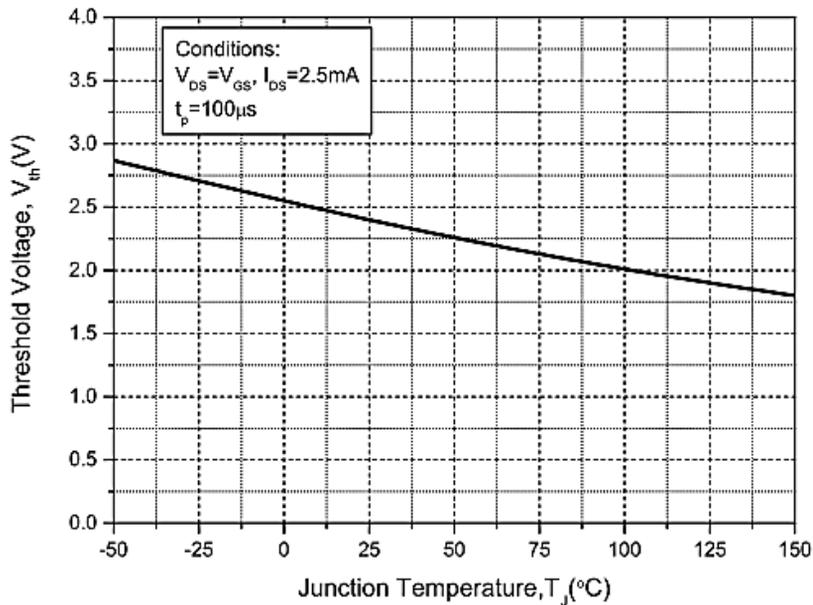


Figure 6. Threshold Voltage vs. Temperature for Various Junction Temperatures

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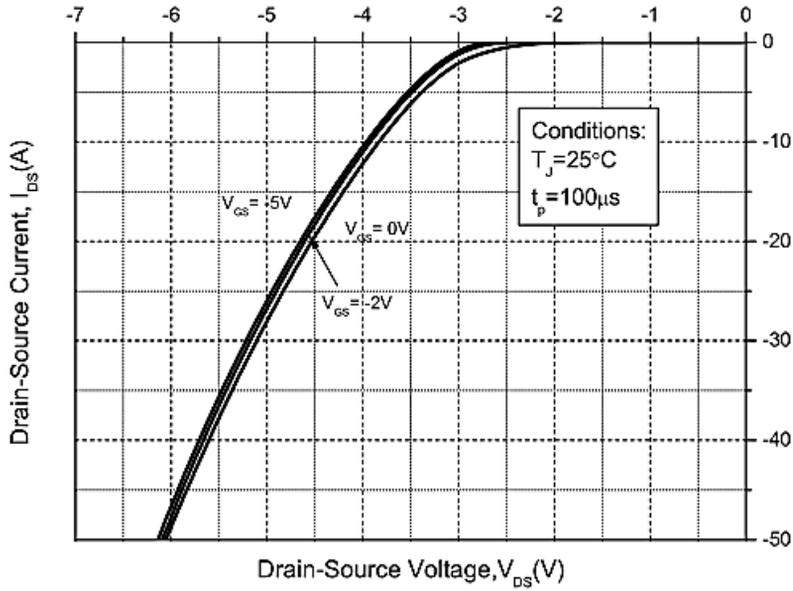


Figure 7. Body Diode Characteristics

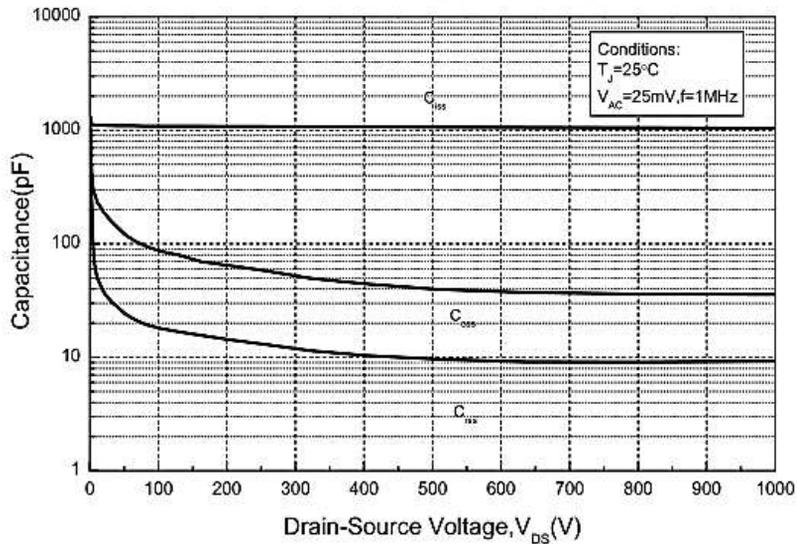


Figure 8. Capacitances vs. Drain-Source Voltage

TYPICAL PERFORMANCE (For Reference Only)

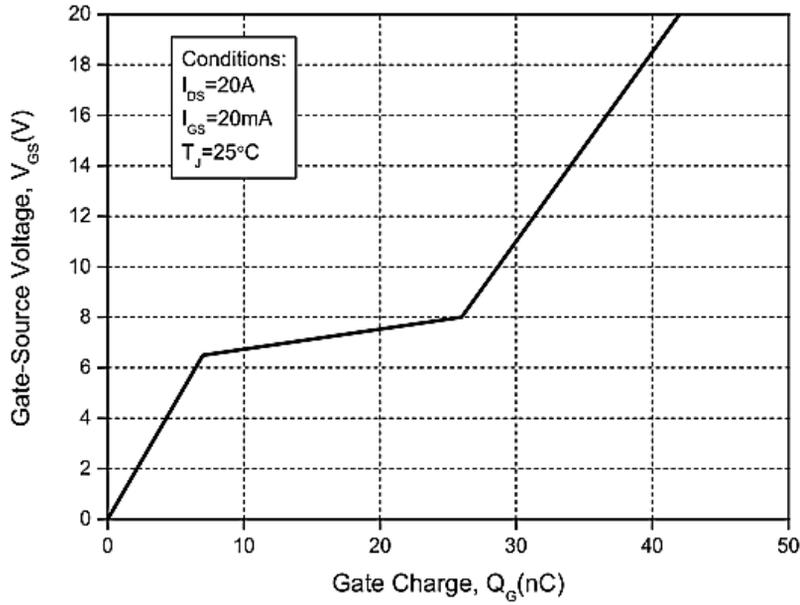


Figure 9. Gate Charge Characteristics

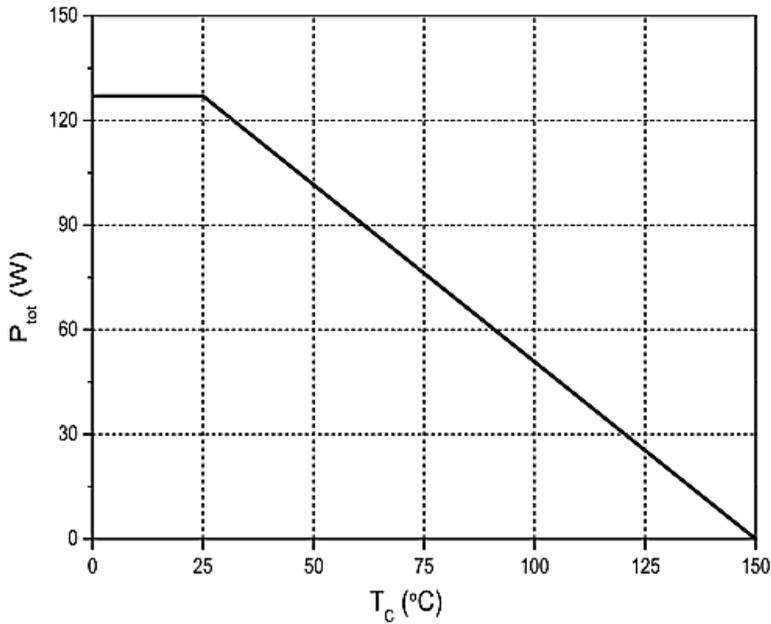


Figure 10. Power Dissipation Derating

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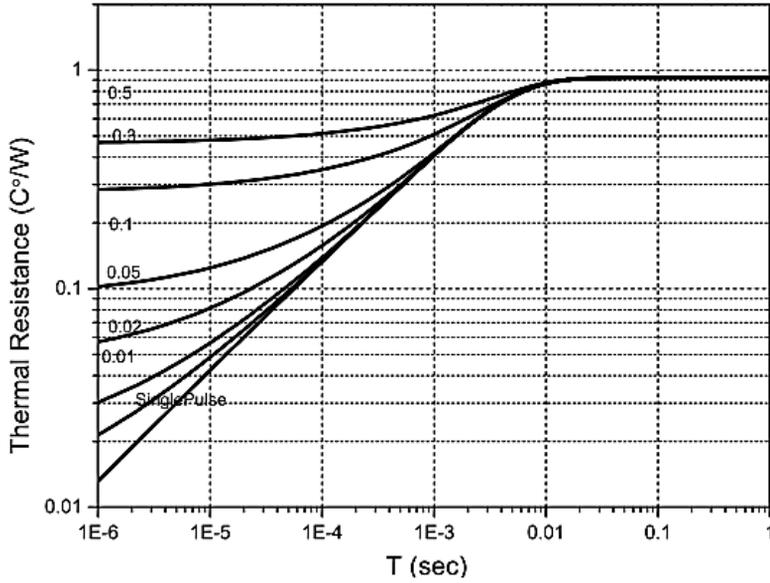
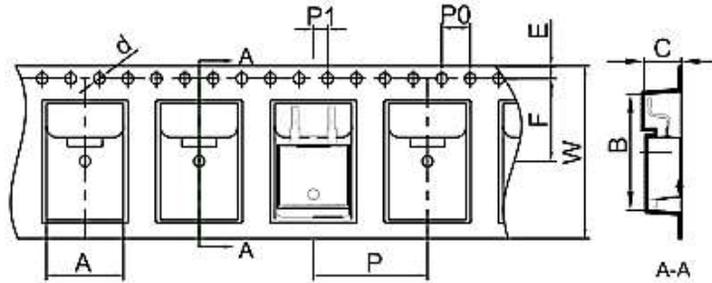
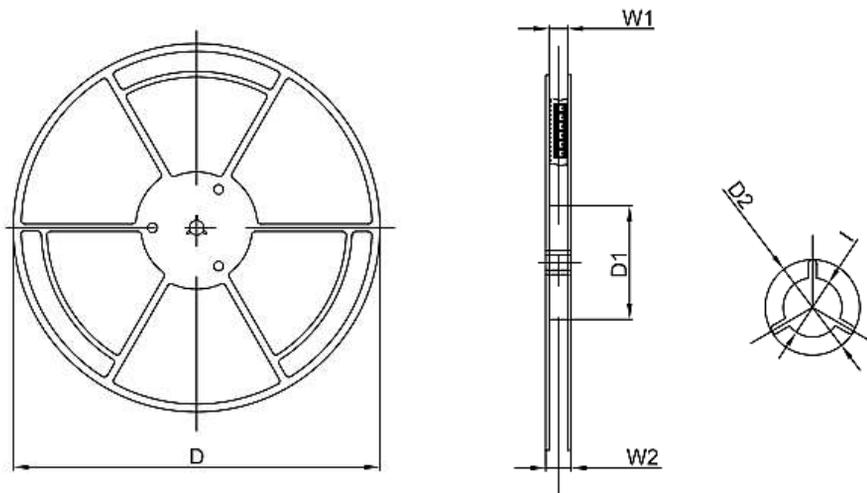


Figure 11. Transient Thermal Impedance

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-263-2	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 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 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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