

SPECIFICATION SHEET NO.	S1114 – LGE3M50330QL0T	
ORIGINAL MFG/PART NO.	 LGE Diodes/LGE3M50330Q-L	
NEXTGEN PART CODE	LGE3M50330QL0T	Indicate This Code For RFQ /Order
DATE	Nov. 14, 2025	
REVISION	A6	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	<p>Silicon Carbide (SiC) MOSFET, 4 Pins, Case TO-247-4, LGE3M L Series, N-Channel, Drain-Source Voltage (V_{DS}): 3300V Max.</p> <p>Current Drain-source On-state Resistance R_{DS(ON)}: 50mΩ Typical</p> <p>Continuous Drain Current (I_D) @ T_c=25°C: 68A</p> <p>Operating Temperature: -55°C ~ 175°C (T_J)</p> <p>Package in Tube, 30pcs/Tube</p> <p>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		

VENDOR APPROVE		
Issued/Checked/Approved		
		
Effective Date: Nov. 14, 2025		

CUSTOMER APPROVE	
Date:	

MAIN FEATURE

- High Blocking Voltage with Low On-Resistance
- High Speed Switching with Low Capacitance
- Temperature-Independent Switching
- Easy to Parallel and Simple to Drive
- Higher System Efficiency
- High Temperature Operation
- 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
- Rail Traction
- Motor Drives
- Ultra-Fast EV Chargers
- Pulsed Power Applications

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 LGE3M50330QL0T For RFQ and Order.

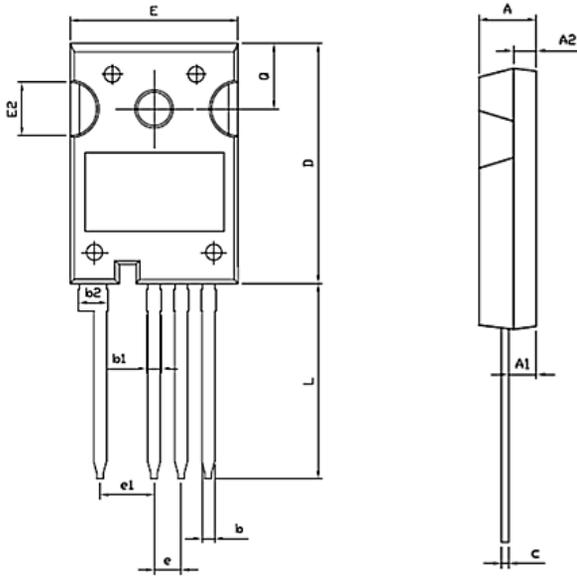
PART CODE GUIDE

RFQ
Request For Quotation

CODE	NAME	KEY SPECIFICATION OPTION
LGE3M	Product Series Code	Silicon Carbide (SiC) Power MOSFET, 4 Pins, Case TO-247-4, LGE3M L Series
50	Current Drain-source On-state Resistance R _{DS(ON)} Code	50: 50mΩ Typical
330	Drain-Source Voltage (V _{DS}) Code	330: 3300V Max.
Q	Package Case Code	B: TO-247-3; E: TO-263-2; J: TO-263-7; Q: TO-247-4;
LOT	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

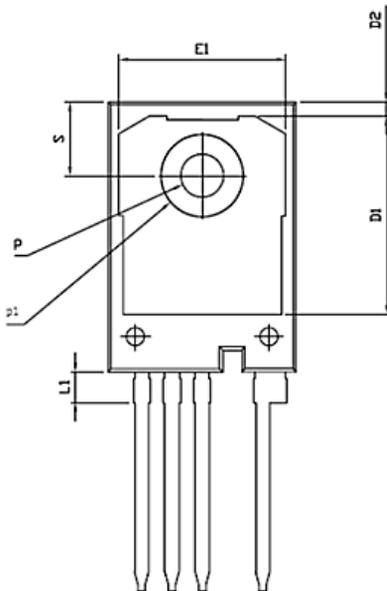
DIMENSION -- Unit: (mm), Case TO-247-4 Outline

Top View

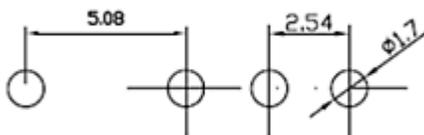


SYMBOL	TO-247-4		
	Min.	NOM	Max.
A2	1.85	2.0	2.15
b	1.05	1.2	1.35
b1	1.0	1.3	1.6
b2	2.35	2.65	2.95
c	0.5	0.6	0.7
D	22.34	22.54	22.74
D1	16.0	16.5	17.0
D2	0.97	1.17	1.37
e	2.34	2.54	2.74
e1	4.88	5.08	5.28
E	15.6	15.8	16.0
E1	13.5	14.0	14.5
E2	4.8	5.0	5.2
L	18.08	18.38	18.68
L1	2.38	2.58	2.78
p	3.5	3.6	3.7
p1	6.6	6.8	7.0
Q	6.0	6.15	6.3
S	6.0	6.15	6.3

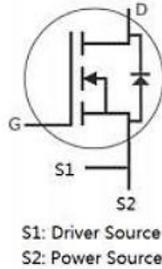
Side View



Recommended Land Pattern



INTERNAL CIRCUIT DIAGRAM



3300V N-CHANNEL SiC MOSFET

VDS	ID @ Tc=25°C	R DS(on)	MARKING	PACKAGE/CASE
3300V	68A	50mΩ	LGE3M50330Q	TO-247-4

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

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Drain-Source Voltage	V DS, Max	VGS=0V, ID=100μA	3300	V
Gate-Source Voltage	V GS, MAX	Absolute maximum values	-10/+22	V
Gate-Source Voltage	V Gsop	Recommended operational values	-5/+18	V
Continuous Drain Current	I D	VGS=18V, Tc=25°C	68	A
		VGS=18V, Tc=100°C	42	
Pulsed Drain Current	I D (pulse)	Pulse width tp limited by TJmax	150	A
Power Dissipation	P D	Tc=25°C, TJ=150°C	560	W
Operating Junction Temperature	T J		-55~ +175	°C
Storage Temperature	T STG		-55~ +175	°C

Assumes a RθJC<0.22°C/W

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	3300	-	-	V
Gates Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =18mA	2.0	2.6	4.0	V
		V _{DS} =V _{GS} , I _D =18mA, T _J =150°C	-	1.8	-	
Zero Gates Voltage Drain Current	I _{DSS}	V _{DS} =3300V, V _{GS} =0V	-	1	100	μA
Gates-Source Leakage Current	I _{GSS+}	V _{GS} =22V, V _{DS} =0V	-	10	250	nA
Gates-Source Leakage Current	I _{GSS-}	V _{GS} =-8V, V _{DS} =0V	-	10	250	nA
Drain-source On-state Resistance	R _{DS(ON)}	V _{GS} =18V, I _D =50A	-	50	70	mΩ
		V _{GS} =18V, I _D =50A T _J =150°C	-	120	160	
Transconductance	g _{fs}	V _{GS} =20V, I _D =50A	-	21.4	-	S
		V _{GS} =20V, I _D =50A T _J =150°C	-	20.2	-	S
Input Capacitance	C _{ISS}	V _{DS} =1700V V _{GS} =0V, f =1MHz V _{AC} =25mV	-	5050	-	pF
Output Capacitance	C _{OSS}		-	360	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	18	-	pF
Coss Stored Energy	E _{OSS}		-	514	-	μJ
Turn - On Switching Energy	E _{on}	V _{DS} = 1700 V, V _{GS} = -5V/20V, I _D = 35A, R _{G(ext)} =2.5Ω, L=200uH	-	6.18	-	mJ
Turn - Off Switching Energy	E _{off}		-	3.77	-	mJ
Turn - On Delay Time	t _{d(on)}	V _{DS} = 1700 V, V _{GS} = -5V/20V, I _D = 35A, R _{G(ext)} =2.5Ω, R _L =40Ω	-	34	-	ns
Rise Time	t _r		-	47.2	-	ns

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

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Turn - Off Delay Time	td (off)	V _{DS} = 1700 V, V _{GS} = -5V/20V, I _D = 35A, R _{G(ext)} = 2.5Ω, R _L = 40Ω		88		ns
Fall Time	t _f				39.2	
Total Gate Charge	Q _g	V _{DS} = 1700V, V _{GS} = -4/18V I _D = 40A	-	262	-	nC
Gate-Source Charge	Q _{gs}		-	72	-	
Gate-Drain Charge	Q _{gd}		-	54	-	
Internal Gate Resistance	R _{g(int)}	f = 1MH, V _{AC} = 25mV	-	1.2	-	Ω

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

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Diode Forward Voltage Note Fig.8,9,10	V _{SD}	V _{GS} = -4V, I _{SD} = 25A	-	4.2	-	V
		V _{GS} = -4V, I _{SD} = 25A, T _J = 150°C	-	3.8	-	
Continuous Diode Forward Current	I _S	T _c = 25°C	-	-	68	A
Reverse Recovery Time	T _{rr}	I _{SD} = 20A, V _R = 1700V	-	61	-	nS
Reverse Recovery Charge	Q _{rr}		-	298	-	nC
Peak Reverse Recovery Current	I _{rrm}		-	8.9	-	A

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	CONDITIONS	VALUE			UNIT
			MIN.	TYP.	MAX	
Thermal Resistance	R _{th(j-c)}	Junction-case	-	-	0.22	°C/W

TYPICAL PERFORMANCE (For Reference Only)

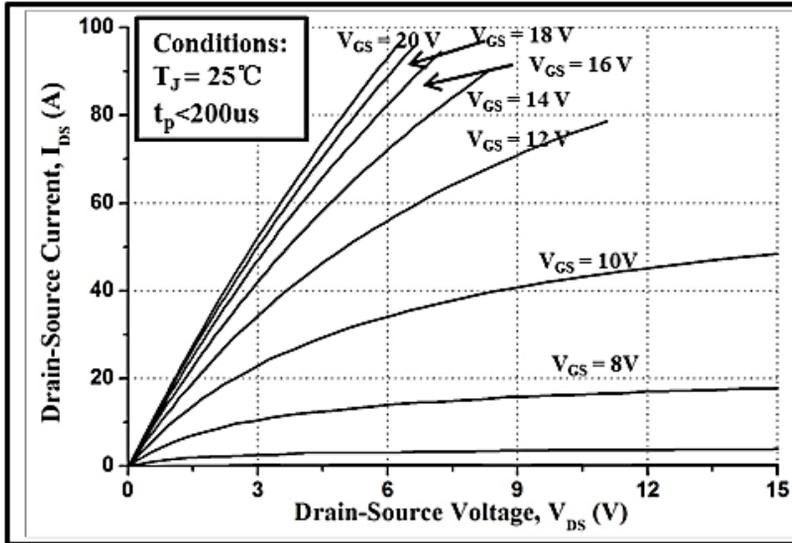


Figure 1. Output Characteristics $T_J = 25^\circ\text{C}$

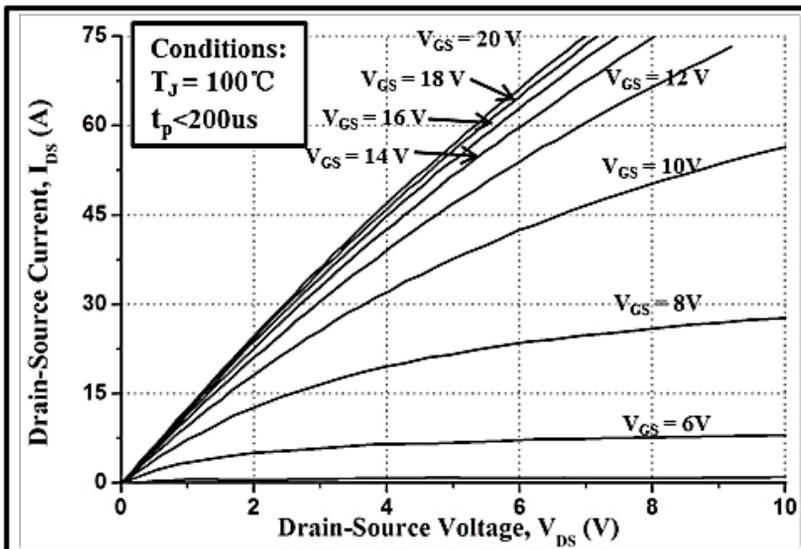


Figure 2. Output Characteristics $T_J = 100^\circ\text{C}$

TYPICAL PERFORMANCE (For Reference Only)

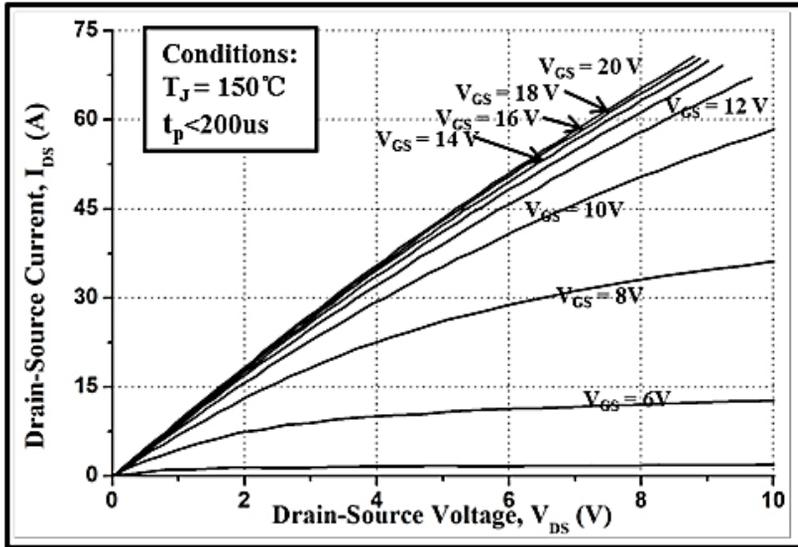


Figure 3. Output Characteristics $T_J = 150^\circ\text{C}$

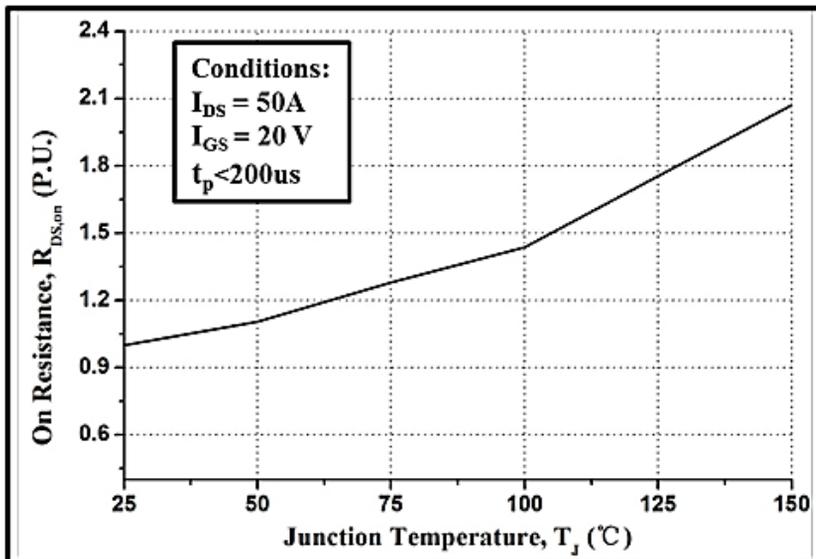
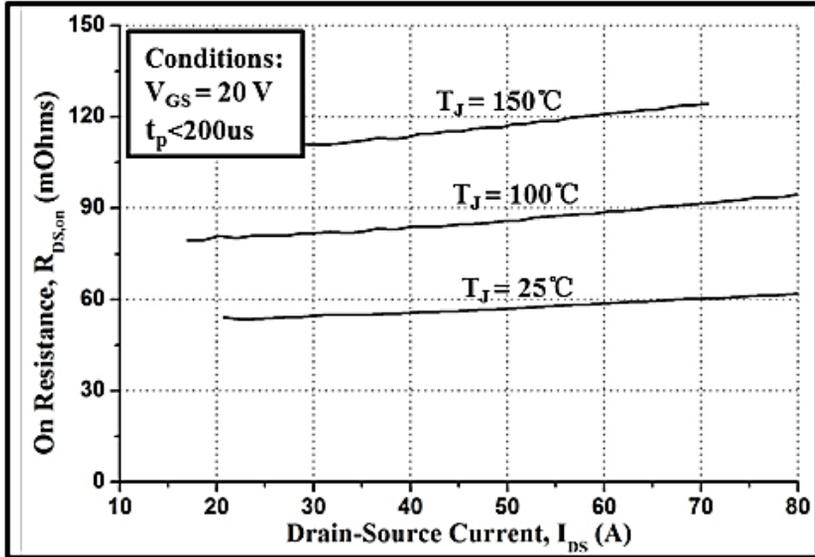
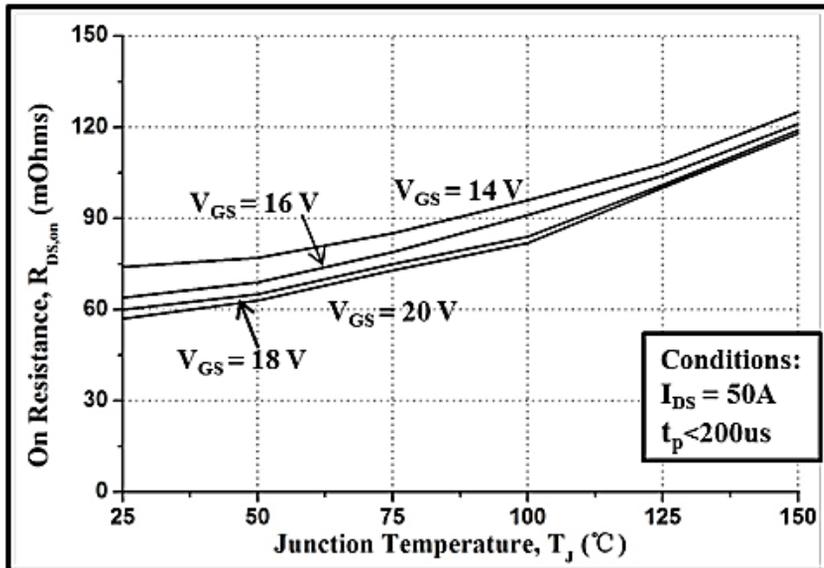


Figure. 4 Normalized On-Resistance vs. Temperature

TYPICAL PERFORMANCE (For Reference Only)



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



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

TYPICAL PERFORMANCE (For Reference Only)

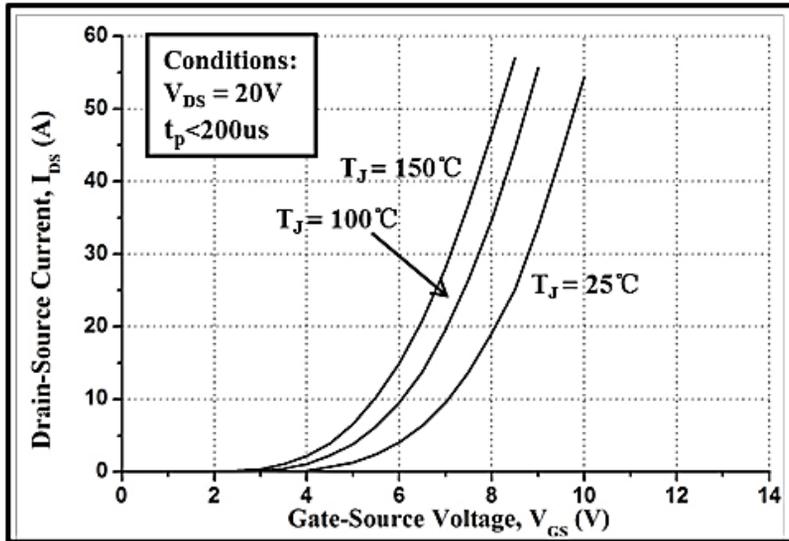


Figure 7. Transfer Characteristic for Various Junction Temperatures

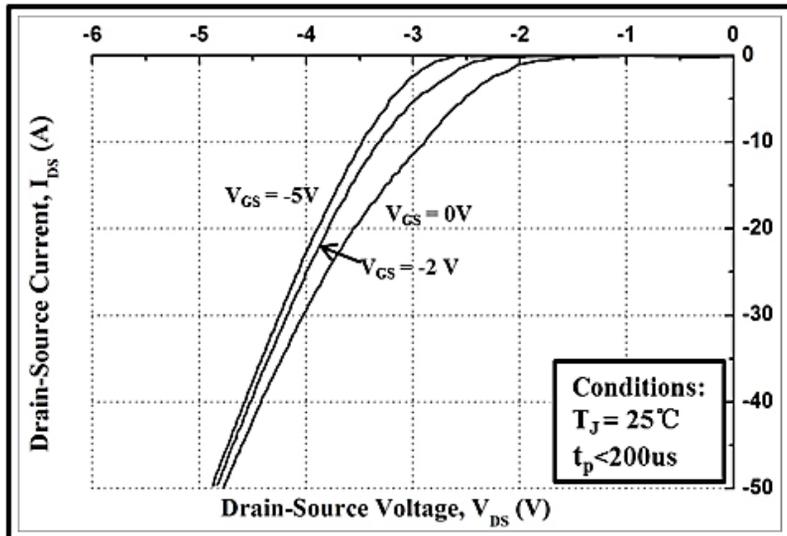


Figure 8. Body Diode Characteristic at 25 °C

TYPICAL PERFORMANCE (For Reference Only)

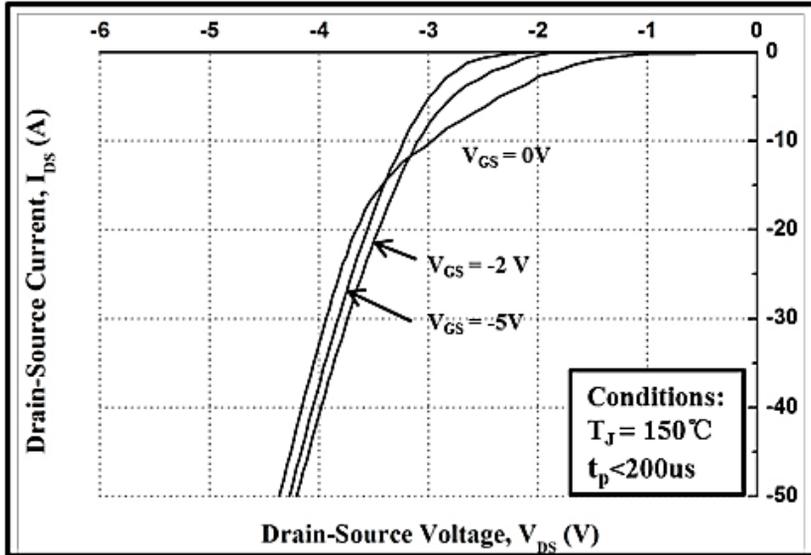


Figure 9. Body Diode Characteristic at 150 °C

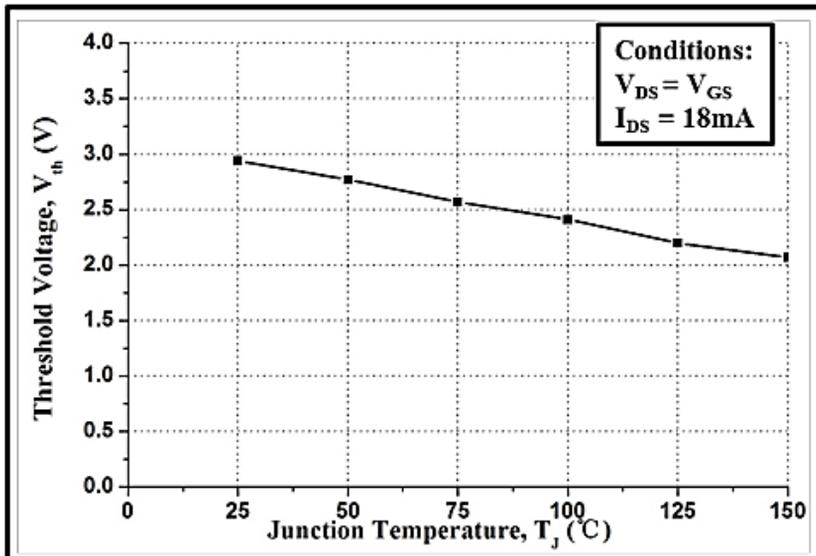


Figure 10. Threshold Voltage vs. Temperature

TYPICAL PERFORMANCE (For Reference Only)

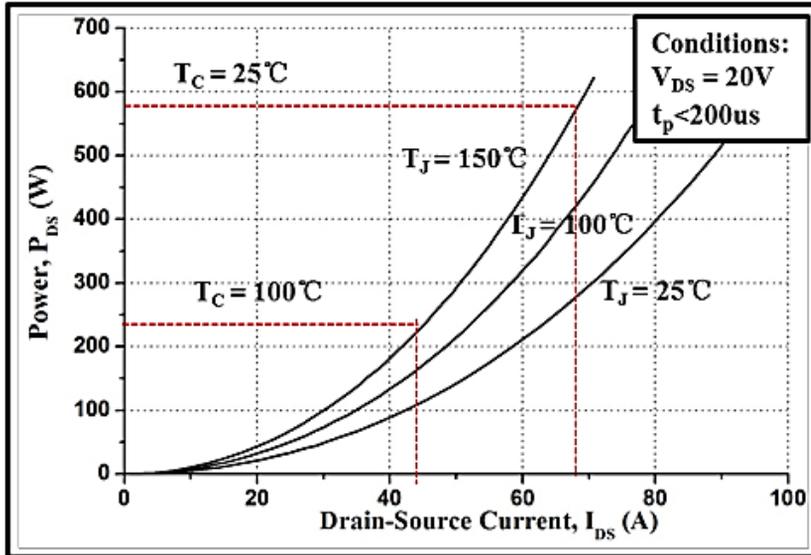


Figure 11. Power Dissipation vs. Drain Current
Various Junction Temperatures

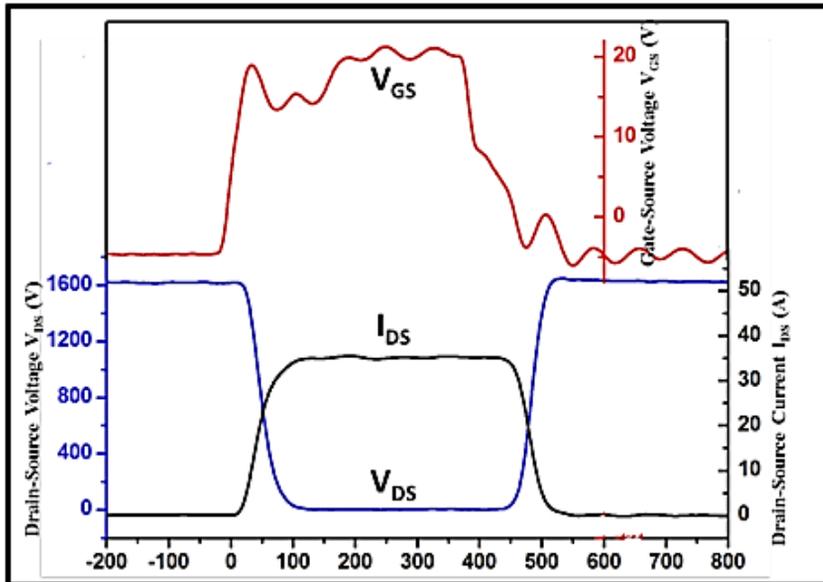


Figure 12. Switching waveforms

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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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