

FEATURES

- Low On-State Resistance
- Low Total Gate Charge and Capacitance Losses
- RoHS Compliant and Halogen Free

ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	VALUE	UNITS
Drain-to-Source Voltage		V _{DS}	60	V
Gate-to-Source Voltage		V _{GS}	±20	V
Drain Current ⁽¹⁾ PDFN-5×6-8BL	T _C = +25°C	I _D	71	A
	T _C = +100°C		45	
	T _A = +25°C		13	
	T _A = +70°C		10.7	
Drain Current ⁽¹⁾ PDFN-3.3×3.3-8CL	T _C = +25°C	I _D	70	A
	T _C = +100°C		43	
	T _A = +25°C		12	
	T _A = +70°C		10	
Drain Current (Pulse) ⁽²⁾ PDFN-5×6-8BL		I _{DM}	255	A
Drain Current (Pulse) ⁽²⁾ PDFN-3.3×3.3-8CL		I _{DM}	250	A
Total Dissipation PDFN-5×6-8BL	T _C = +25°C	P _D	62.5	W
	T _C = +100°C		25	
	T _A = +25°C		2.5	
	T _A = +70°C		1.6	
Total Dissipation PDFN-3.3×3.3-8CL	T _C = +25°C	P _D	56	W
	T _C = +100°C		22	
	T _A = +25°C		2.2	
	T _A = +70°C		1.4	
Avalanche Current ⁽³⁾		I _{AS}	51	A
Avalanche Energy ⁽³⁾		E _{AS}	130	mJ
Junction Temperature		T _J	+150	°C
Storage Temperature Range		T _{STG}	-55 to +150	°C
Lead Temperature (Soldering, 10s)			+260	°C

Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

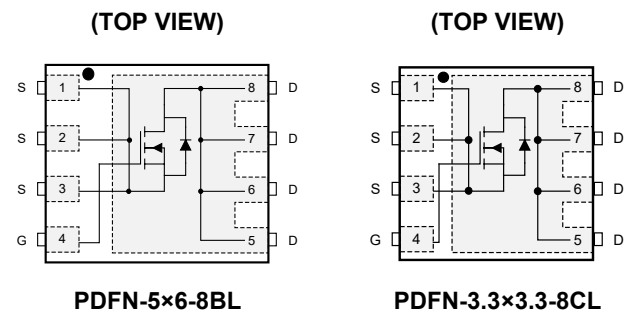
NOTES:

1. The current will be limited by package, PCB, thermal design and operating temperature.
2. $t_{PULSE} < 10\mu\text{s}$.
3. Parts are 100% tested at $V_{GS} = 10\text{V}$, $I_L = 36.1\text{A}$, and $E_{AS} = 65\text{mJ}$.

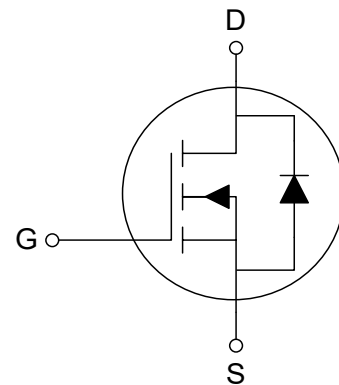
PRODUCT SUMMARY

PACKAGE	$R_{DS(on)}$ (TYP) $V_{GS} = 10\text{V}$	$R_{DS(on)}$ (MAX) $V_{GS} = 10\text{V}$	I_D (MAX) $T_C = +25^\circ\text{C}$
PDFN-5×6-8BL	5.3m Ω	6.6m Ω	71A
PDFN-3.3×3.3-8CL	5.3m Ω	6.6m Ω	70A

PIN CONFIGURATIONS



EQUIVALENT CIRCUIT



APPLICATIONS

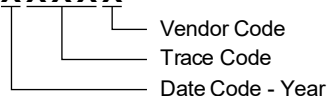
Humanoid Robot
Battery Management
Motors and Solenoid Control

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGMQT06360	PDFN-5×6-8BL	-55°C to +150°C	SGMQT06360TPDA8G/TR	SGM2XG TPDA8 XXXXX	Tape and Reel, 4000
	PDFN-3.3×3.3-8CL	-55°C to +150°C	SGMQT06360TPDC8G/TR	SGM2XH TPDC8 XXXXX	Tape and Reel, 5000

MARKING INFORMATION

NOTE: XXXXX = Date Code, Trace Code and Vendor Code.

XXXXX

Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

THERMAL RESISTANCE

PARAMETER		SYMBOL	TYP	UNITS
Junction-to-Ambient Thermal Resistance ⁽¹⁾	PDFN-5×6-8BL	$R_{\theta JA}$	49	°C/W
	PDFN-3.3×3.3-8CL		56	
Junction-to-Case Thermal Resistance	PDFN-5×6-8BL	$R_{\theta JC}$	2	°C/W
	PDFN-3.3×3.3-8CL		2.2	

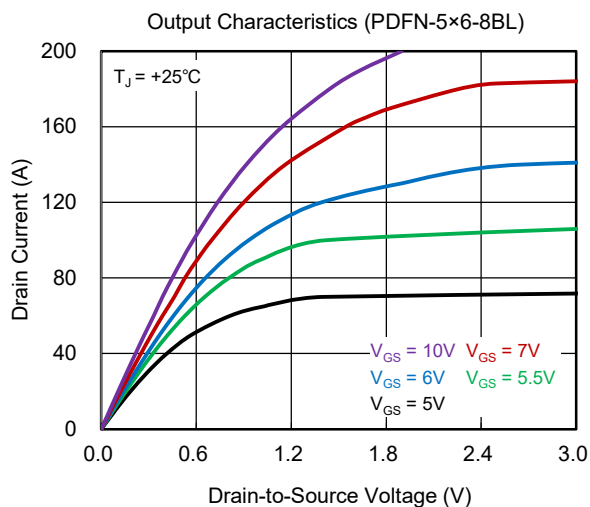
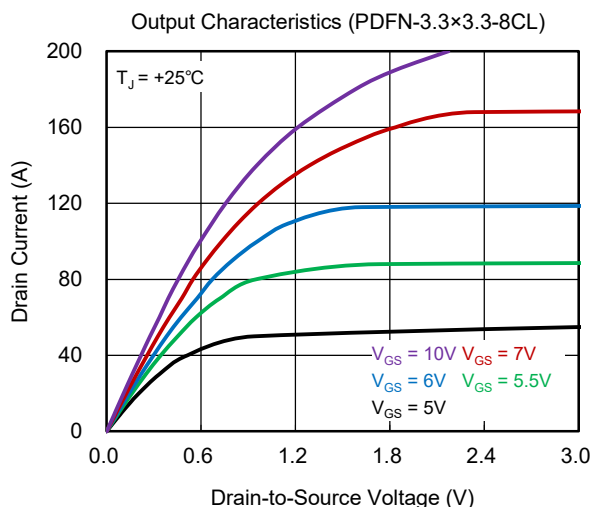
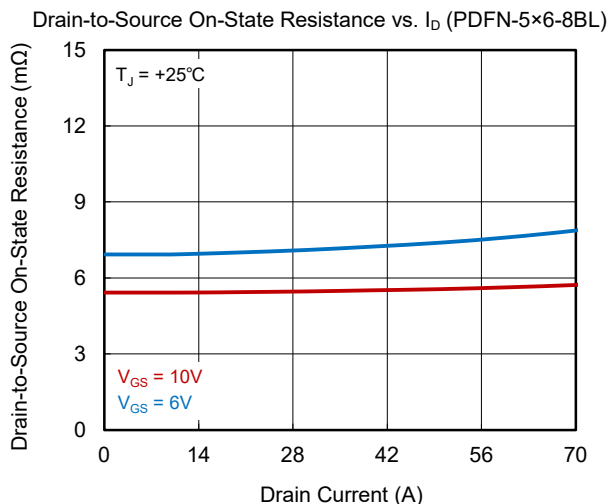
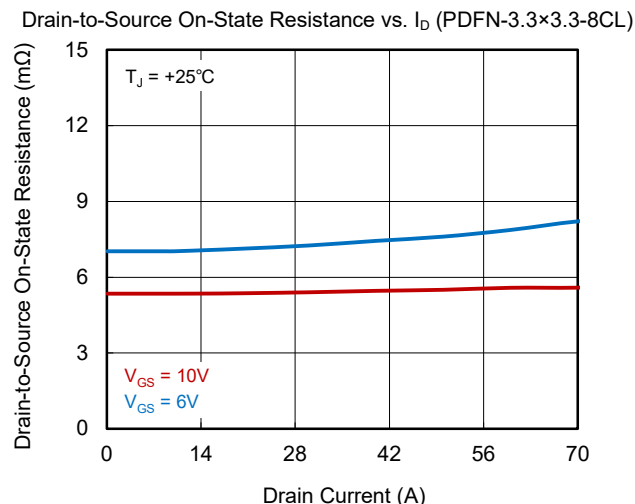
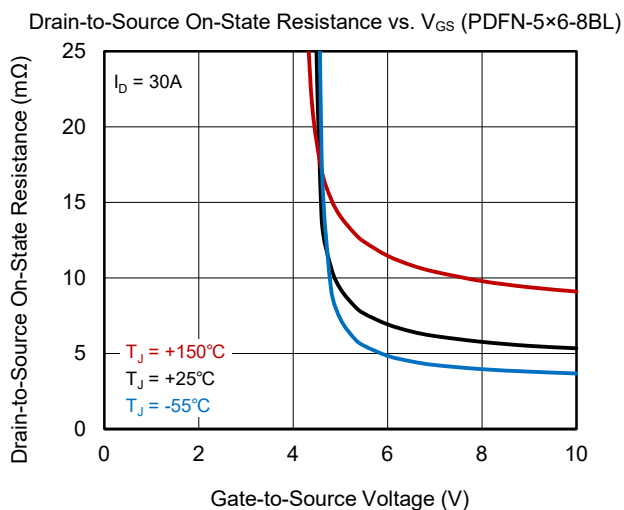
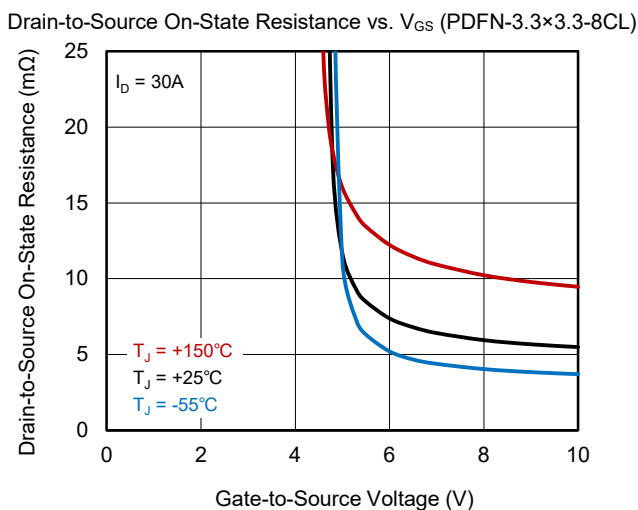
NOTE: 1. $R_{\theta JA}$ is determined with the device mounted on one square inch of copper pad, 2oz copper on FR4 board.

ELECTRICAL CHARACTERISTICS

(T_A = +25°C, unless otherwise noted.)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Static OFF Characteristics						
Drain-to-Source Breakdown Voltage	V _{BR_DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{GS} = 0V, V _{DS} = 48V			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Static ON Characteristics						
Gate-to-Source Threshold Voltage	V _{GS_TH}	V _{GS} = V _{DS} , I _D = 250μA	2	2.8	4	V
Drain-to-Source On-State Resistance	R _{DSON}	V _{GS} = 10V, I _D = 30A		5.3	6.6	mΩ
		V _{GS} = 6V, I _D = 10A		7	9.1	
Forward Transconductance	g _{FS}	V _{DS} = 10V, I _D = 30A		15		S
Gate Resistance	R _G	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1		Ω
Diode Characteristics						
Diode Forward Voltage	V _{F_SD}	V _{GS} = 0V, I _S = 30A		0.8	1.2	V
Reverse Recovery Time	t _{RR}	V _{GS} = 0V, I _S = 30A, di/dt = 100A/μs		33		ns
Reverse Recovery Charge	Q _{RR}			33		nC
Dynamic Characteristics						
Input Capacitance	C _{ISS}	V _{GS} = 0V, V _{DS} = 30V, f = 1MHz		1963		pF
Output Capacitance	C _{OSS}			440		
Reverse Transfer Capacitance	C _{RSS}			41		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 30V, I _D = 30A		36.8		nC
Gate-to-Source Charge	Q _{GS}			10.2		
Gate-to-Drain Charge	Q _{GD}			9.8		
Switch Characteristics						
Turn-On Delay Time	t _{D_ON}	V _{GS} = 10V, V _{DS} = 30V, I _D = 30A, R _G = 3Ω		12.2		ns
Rise Time	t _R			39.2		
Turn-Off Delay Time	t _{D_OFF}			23.8		
Fall Time	t _F			8.3		

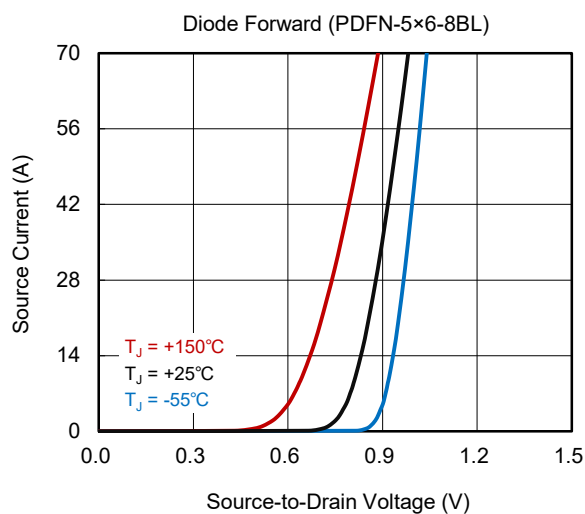
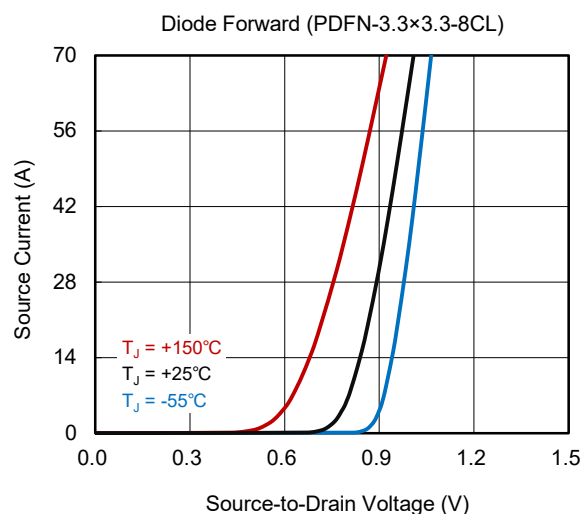
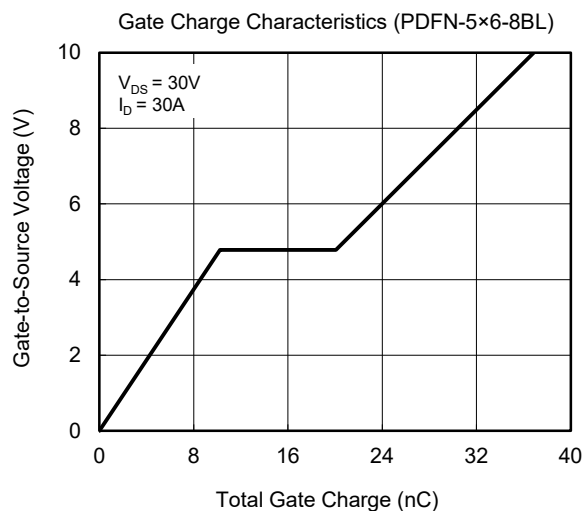
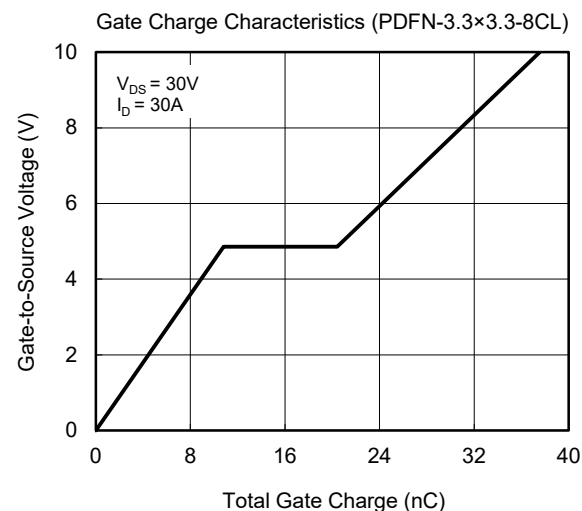
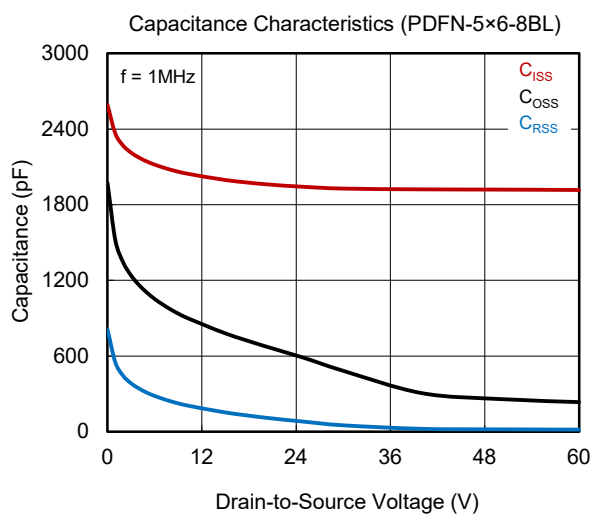
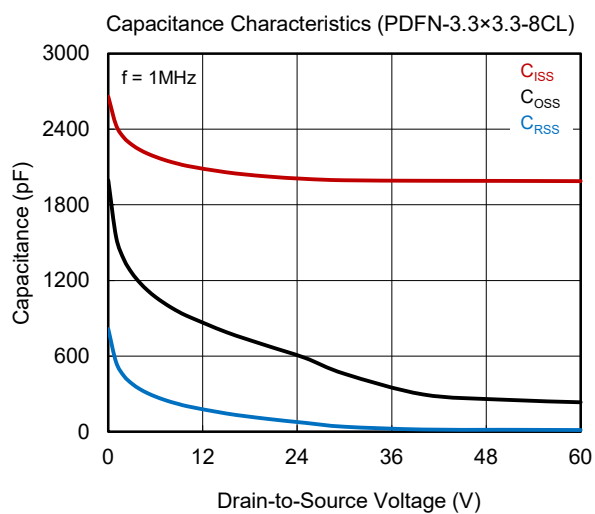
TYPICAL PERFORMANCE CHARACTERISTICS



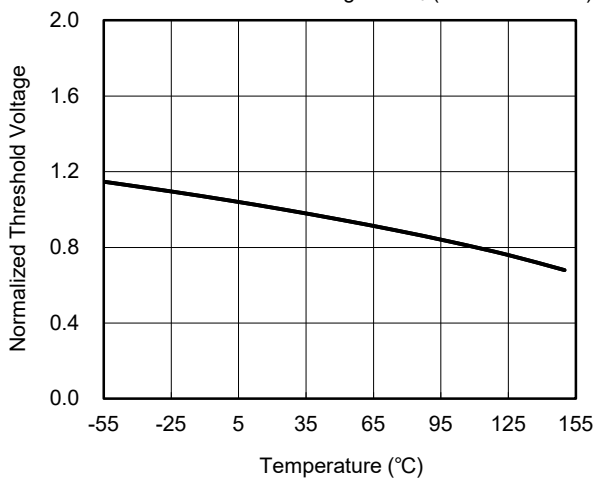
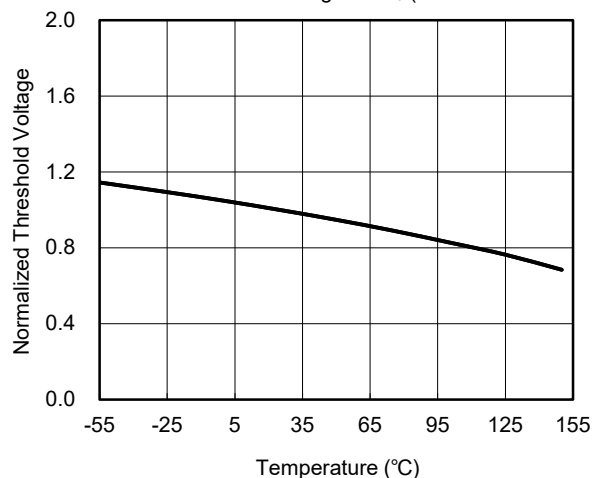
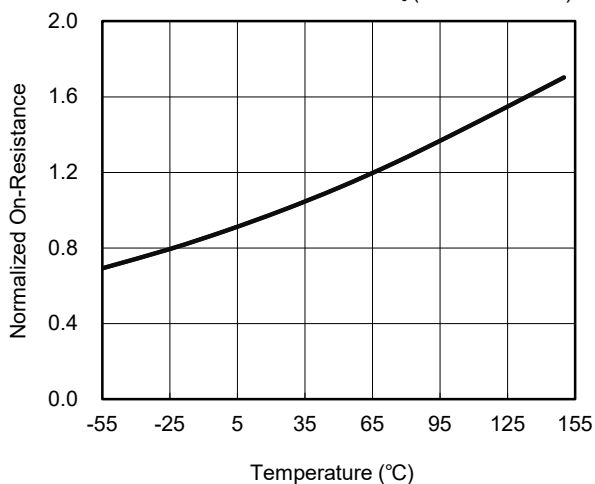
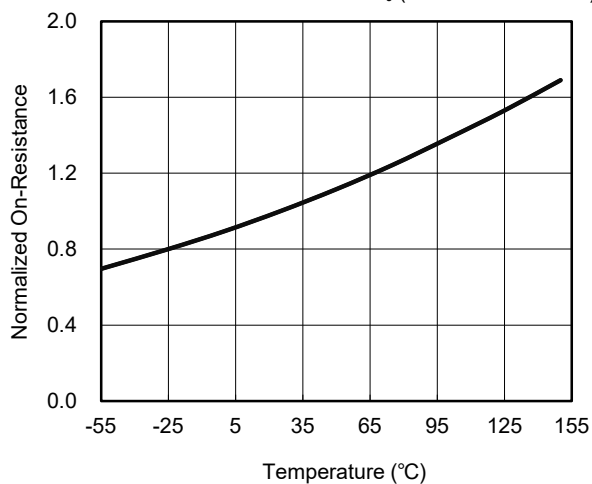
SGMQT06360

60V, Power, Single N-Channel, PDFN Package, MOSFET

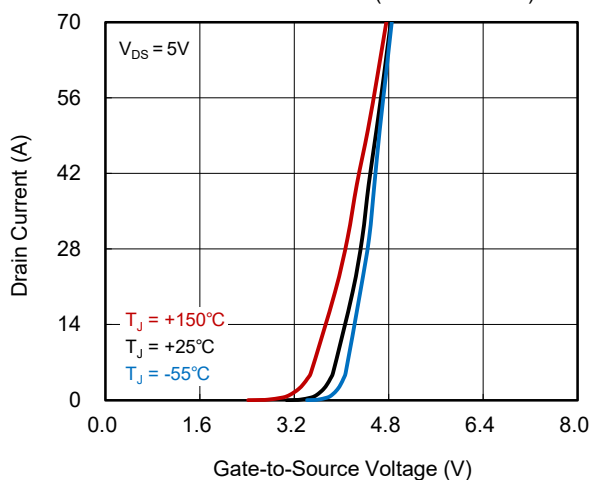
TYPICAL PERFORMANCE CHARACTERISTICS (continued)



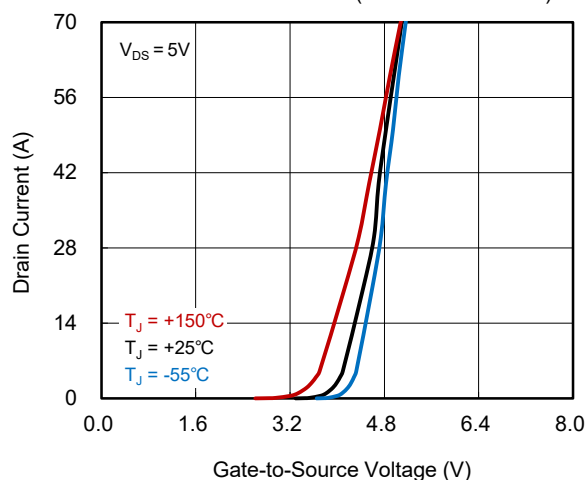
TYPICAL PERFORMANCE CHARACTERISTICS (continued)

Normalized Threshold Voltage vs. T_J (PDFN-5×6-8BL)Normalized Threshold Voltage vs. T_J (PDFN-3.3×3.3-8CL)Normalized On-Resistance vs. T_J (PDFN-5×6-8BL)Normalized On-Resistance vs. T_J (PDFN-3.3×3.3-8CL)

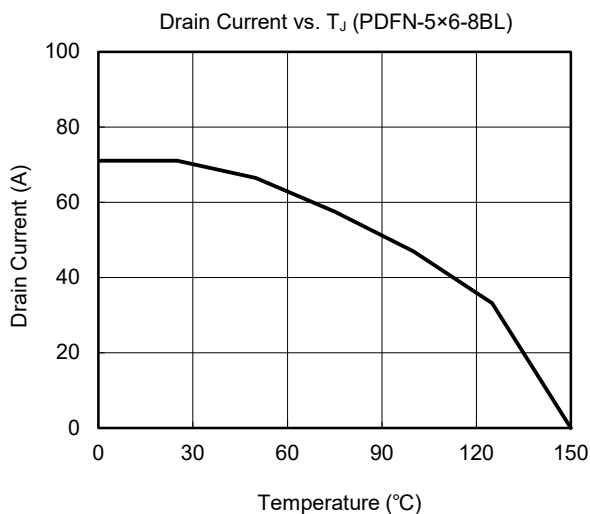
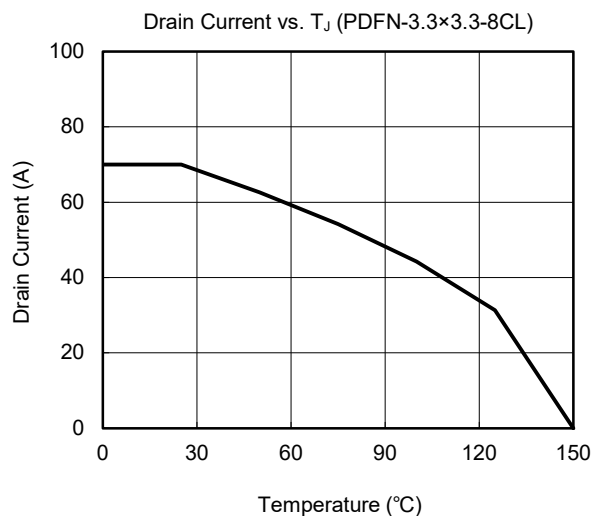
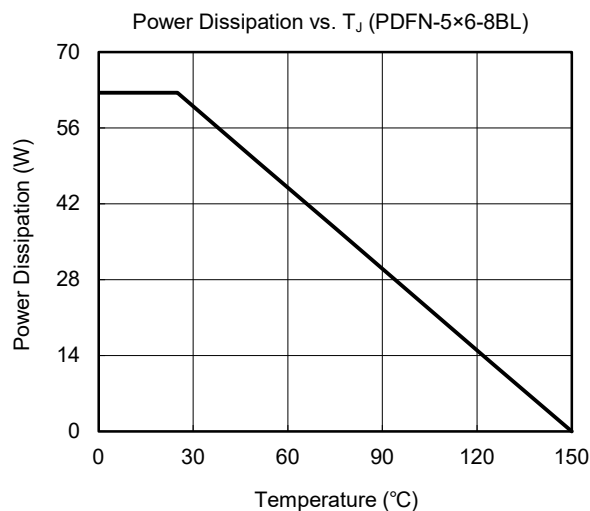
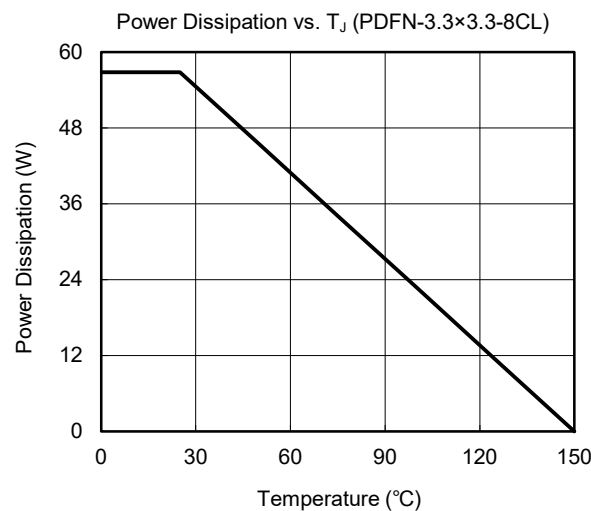
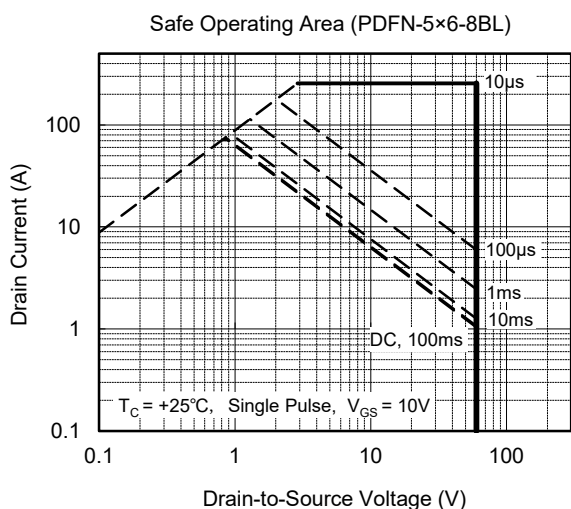
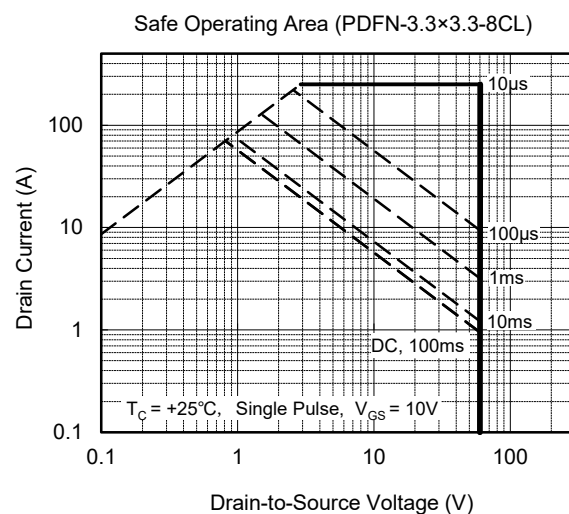
Transfer Characteristics (PDFN-5×6-8BL)



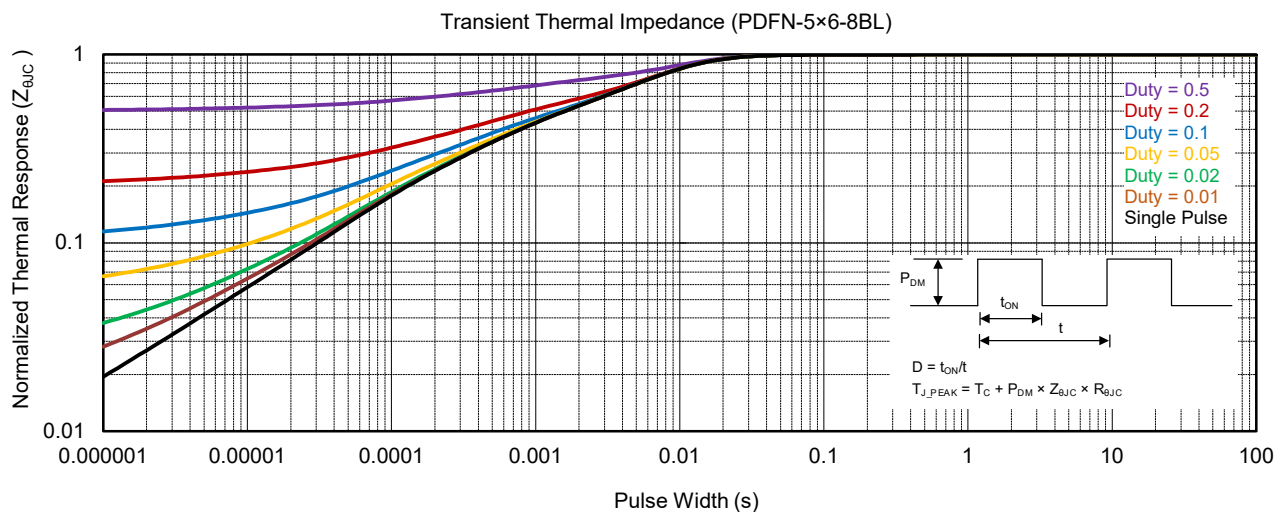
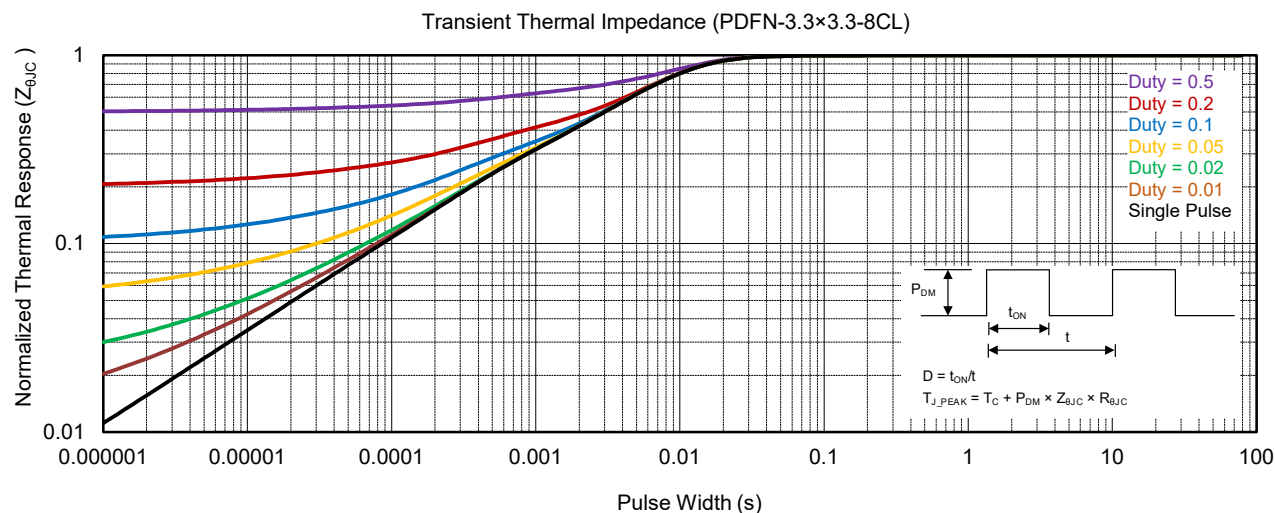
Transfer Characteristics (PDFN-3.3×3.3-8CL)



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



TYPICAL PERFORMANCE CHARACTERISTICS (continued)



REVISION HISTORY

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

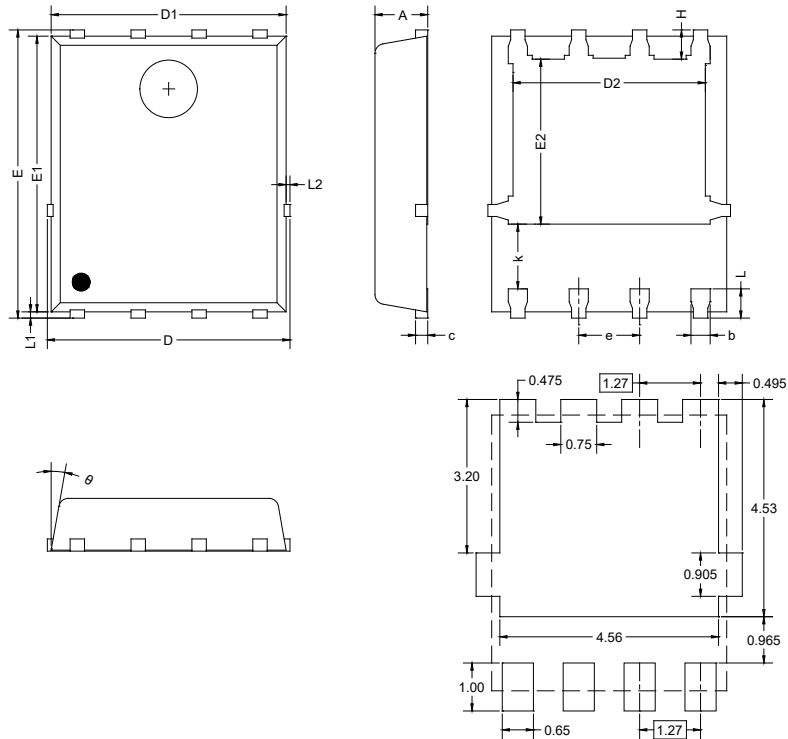
Changes from Original to REV.A (OCTOBER 2026)

Page

Changed from product preview to production data.....All

PACKAGE OUTLINE DIMENSIONS

PDFN-5×6-8BL



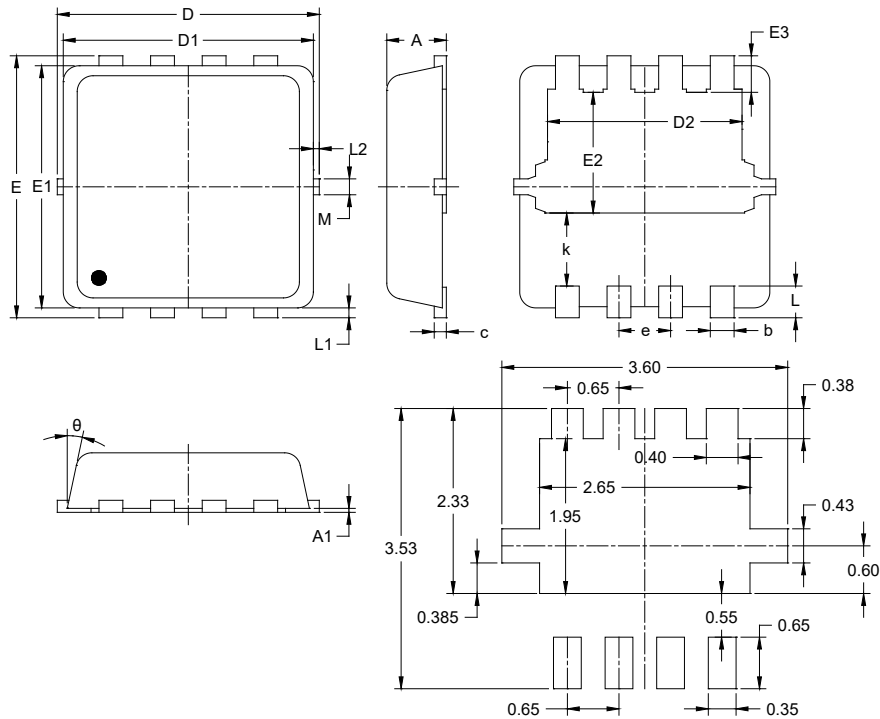
RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	1.000	1.100	1.200
b	0.300	0.400	0.500
c	0.150	0.250	0.350
D	4.800	-	5.400
D1	4.800	4.900	5.000
D2	3.910	4.010	4.310
E	5.900	6.000	6.250
E1	5.650	5.750	5.850
E2	3.300	3.440	3.540
e	1.270 BSC		
H	0.350	0.610	0.710
k	1.100	-	-
L	0.380	0.610	0.710
L1	0.050	0.130	0.250
L2	-	-	0.220
θ	8°	10°	12°

NOTE: This drawing is subject to change without notice.

PACKAGE OUTLINE DIMENSIONS

PDFN-3.3×3.3-8CL



RECOMMENDED LAND PATTERN (Unit: mm)

Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.700	-	0.850
A1	-	-	0.050
b	0.200	-	0.400
c	0.100	-	0.250
D	3.150	-	3.450
D1	3.000	-	3.250
D2	2.290	-	2.650
e	0.650 BSC		
E	3.150	-	3.450
E1	2.900	-	3.200
E2	1.320	-	1.720
E3	0.280	-	0.650
k	0.920 REF		
L	0.300	-	0.500
L1	0.060	-	0.200
L2	0.000	-	0.130
M	0.200 REF		
θ	10°	-	14°

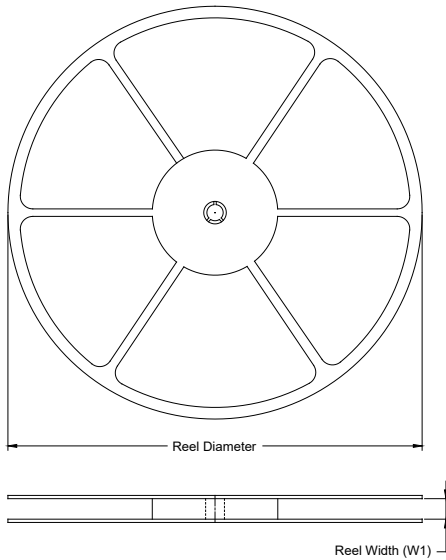
NOTES:

1. This drawing is subject to change without notice.
2. The dimensions do not include mold flashes, protrusions or gate burrs.

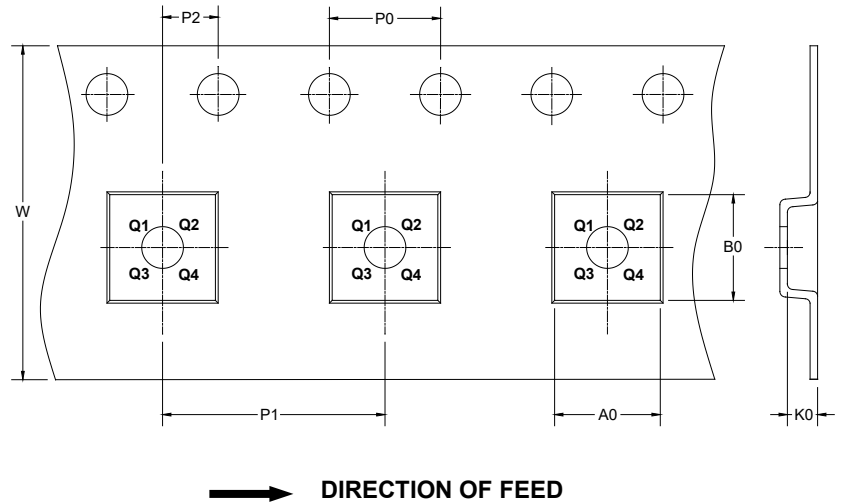
PACKAGE INFORMATION

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

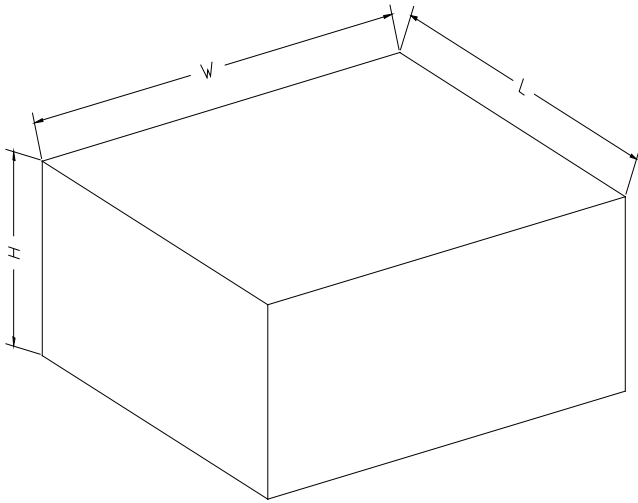
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
PDFN-5×6-8BL	13"	12.4	6.45	5.30	1.40	4.0	8.0	2.0	12.0	Q1
PDFN-3.3×3.3-8CL	13"	12.4	3.60	3.60	1.10	4.0	8.0	2.0	12.0	Q1

DD0001

PACKAGE INFORMATION

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13"	386	280	370	5

DD0002