



100V 7.0mΩ N-Ch Power MOSFET

Features

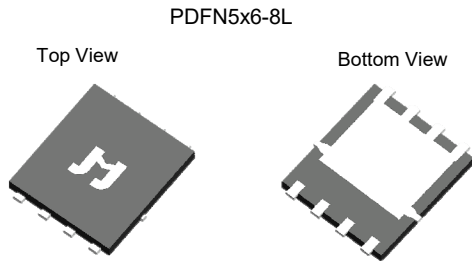
- Ultra-low ON-resistance, $R_{DS(ON)}$
- Low Gate Charge, Q_g
- 100% UIS and R_g Tested
- Pb-free Lead Plating
- Halogen-free and RoHS-compliant

Product Summary

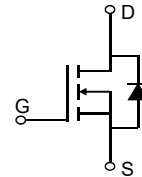
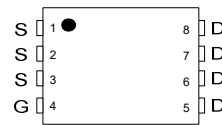
Parameter	Value	Unit
V_{DS}	100	V
$V_{GS(th_Typ)}$	1.7	V
I_D (@ $V_{GS} = 10V$) ⁽¹⁾	77	A
$R_{DS(ON_Typ)}$ (@ $V_{GS} = 10V$)	7.0	mΩ
$R_{DS(ON_Typ)}$ (@ $V_{GS} = 4.5V$)	8.9	mΩ

Applications

- Power Management in Telecom., Industrial Automation, CE
- Current Switching in DC/DC & AC/DC (SR) Sub-systems
- Motor Driving in Power Tool, E-vehicle, Robotics



Pin Configuration
Top View

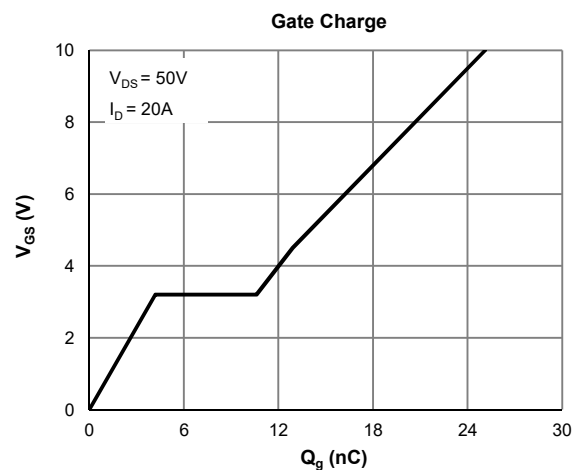
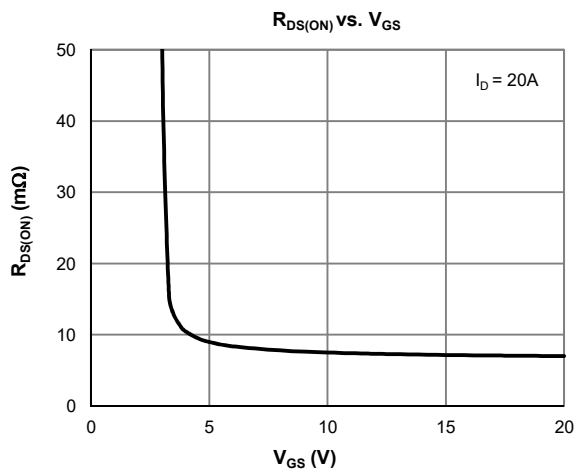


Ordering Information

Device	Package	# of Pins	Marking	MSL	T_J (°C)	Media	Quantity (pcs)
JMSL1009AG-13	PDFN5x6-8L	8	SL1009A	1	-55 to 150	13-inch Reel	5000

Absolute Maximum Ratings (@ $T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	100	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ⁽¹⁾	I_D	$T_C = 25^\circ C$	77
		$T_C = 100^\circ C$	49
Pulsed Drain Current ⁽²⁾	I_{DM}	231	A
Avalanche Current ⁽³⁾	I_{AS}	24	A
Avalanche Energy ⁽³⁾	E_{AS}	86	mJ
Power Dissipation ⁽⁴⁾	P_D	$T_C = 25^\circ C$	90
		$T_C = 100^\circ C$	36
Junction & Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C





Electrical Characteristics (@ T_J = 25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	I _D = 250μA, V _{GS} = 0V	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80V, V _{GS} = 0V T _J = 55°C			1.0 5.0	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.2	1.7	2.5	V
Static Drain-Source ON-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 20A		7.0	8.2	mΩ
	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 15A		8.9	11.2	mΩ
Forward Transconductance	g _{FS}	V _{DS} = 5V, I _D = 10A		127		S
Diode Forward Voltage	V _{SD}	I _S = 1A, V _{GS} = 0V		0.68	1.0	V
Diode Continuous Current	I _S	T _C = 25°C			90	A

DYNAMIC PARAMETERS ⁽⁵⁾

Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 50V, f = 1MHz		1314		pF
Output Capacitance	C _{oss}			548		pF
Reverse Transfer Capacitance	C _{rss}			26		pF
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.6		Ω

SWITCHING PARAMETERS ⁽⁵⁾

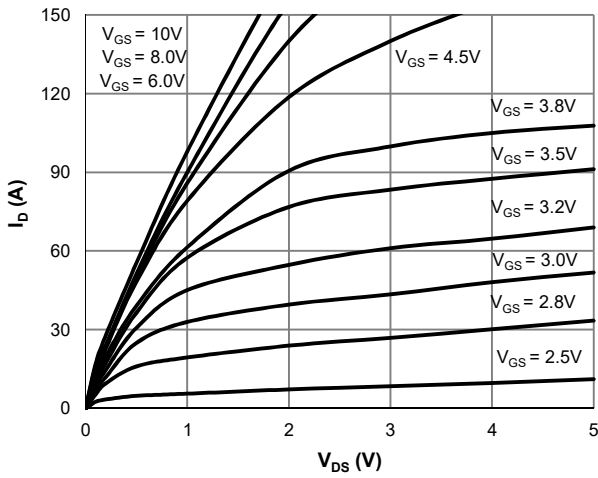
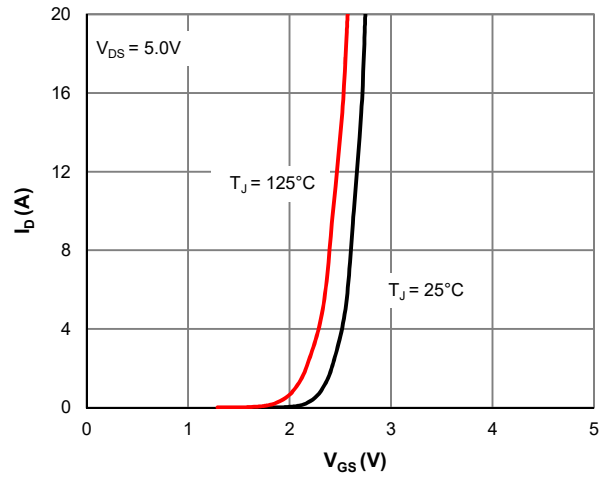
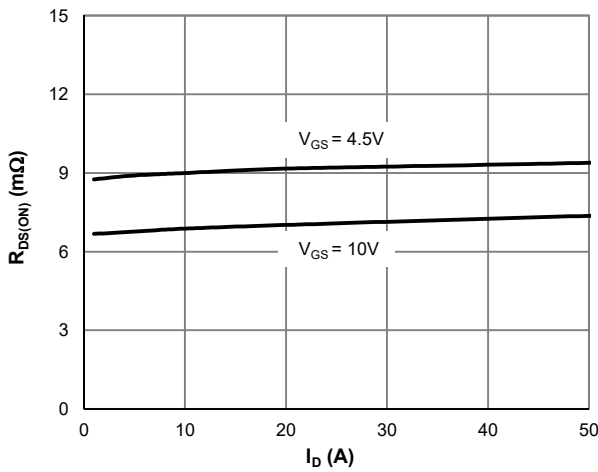
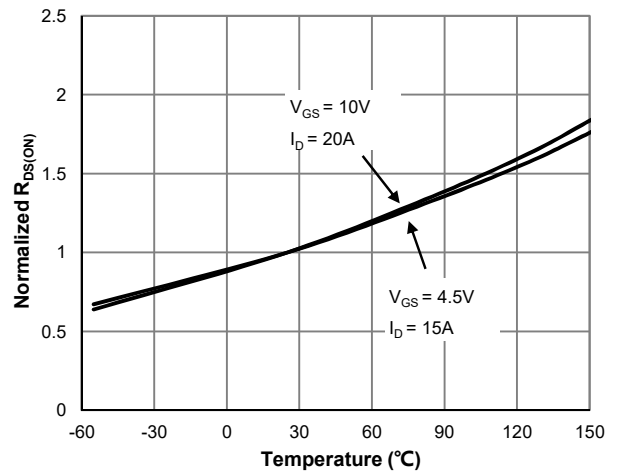
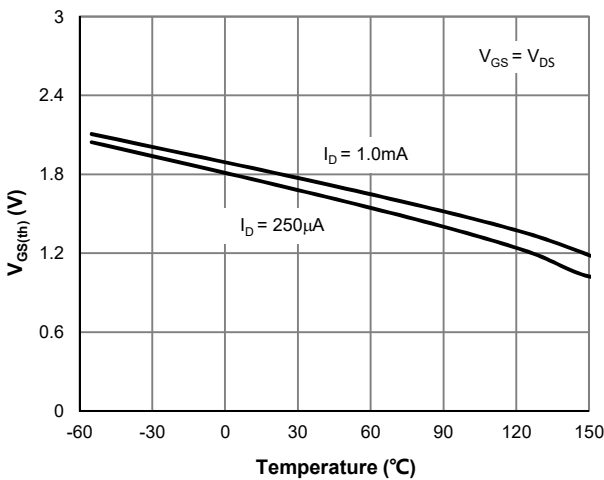
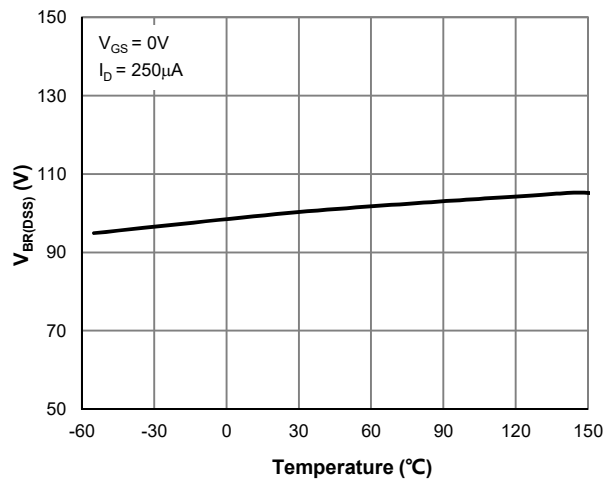
Total Gate Charge (@ V _{GS} = 10V)	Q _g	V _{GS} = 0 to 10V V _{DS} = 50V, I _D = 20A		25		nC
Total Gate Charge (@ V _{GS} = 4.5V)	Q _g			12.9		nC
Gate Source Charge	Q _{gs}			4.2		nC
Gate Drain Charge	Q _{gd}			6.3		nC
Turn-On DelayTime	t _{D(on)}	V _{GS} = 10V, V _{DS} = 50V R _L = 2.5Ω, R _{GEN} = 6Ω		10.6		ns
Turn-On Rise Time	t _r			53		ns
Turn-Off DelayTime	t _{D(off)}			34		ns
Turn-Off Fall Time	t _f			108		ns
Body Diode Reverse Recovery Time	t _{rr}		I _F = 20A, dI _F /dt = 100A/μS		55	
Body Diode Reverse Recovery Charge	Q _{rr}	I _F = 20A, dI _F /dt = 100A/μS		39		nC

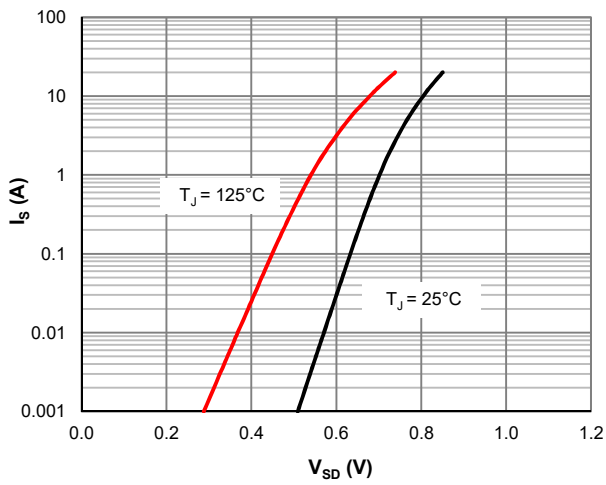
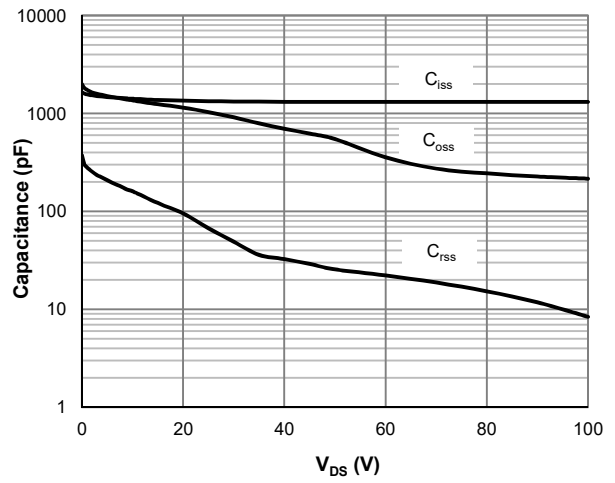
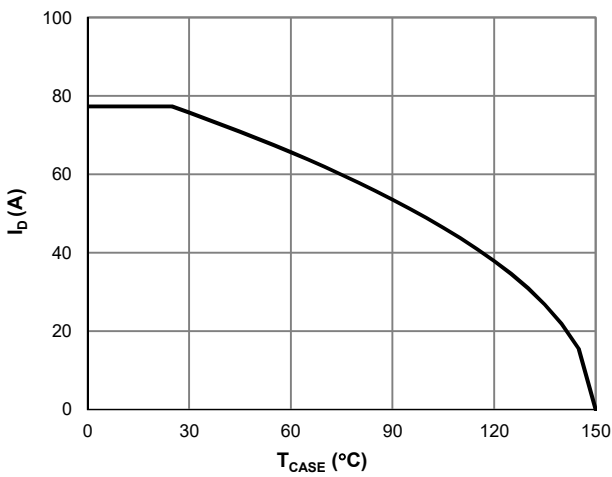
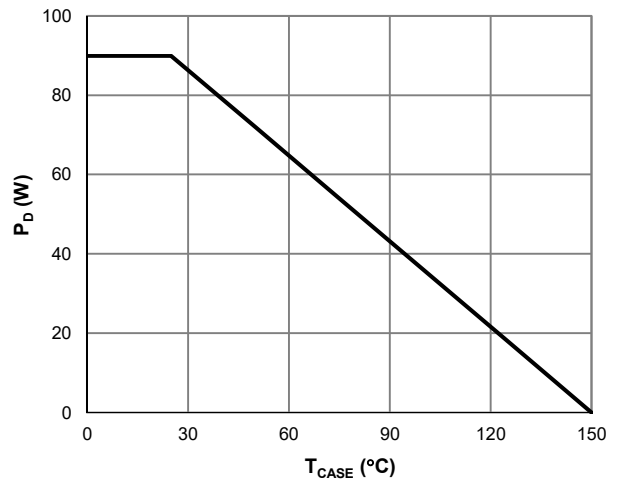
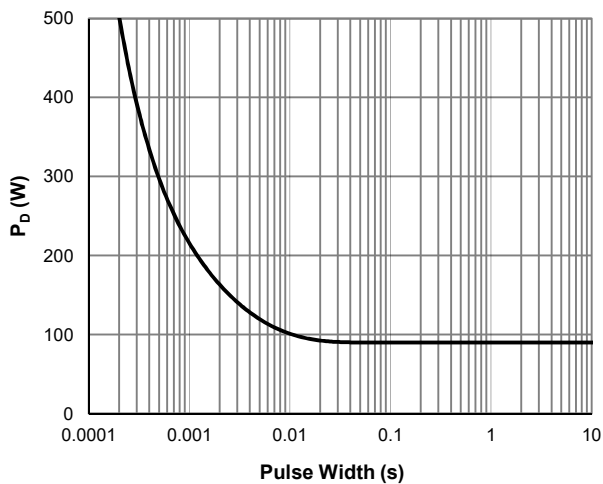
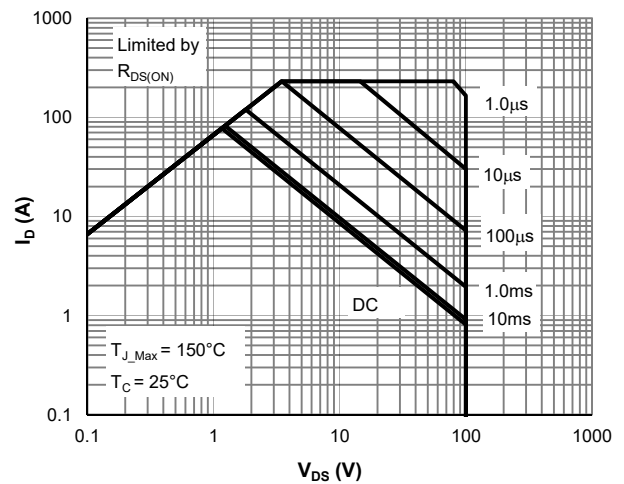
Thermal Performance

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Ambient	R _{θJA}	54	65	°C/W
Thermal Resistance, Junction-to-Case	R _{θJC}	1.4	1.8	°C/W

Notes:

1. Computed continuous current assumes the condition of T_{J,Max} while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. This single-pulse measurement was taken under T_{J,Max} = 150°C.
3. This single-pulse measurement was taken under the following condition [L = 300μH, V_{GS} = 10V, V_{DS} = 50V] while its value is limited by T_{J,Max} = 150°C.
4. The power dissipation P_D is based on T_{J,Max} = 150°C.
5. This value is guaranteed by design hence it is not included in the production test.

Typical Electrical & Thermal Characteristics

Figure 1: Saturation Characteristics

Figure 2: Transfer Characteristics

Figure 3: $R_{DS(ON)}$ vs. Drain Current

Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

Figure 5: $V_{GS(th)}$ vs. Junction Temperature

Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

Typical Electrical & Thermal Characteristics

Figure 7: Body-Diode Characteristics

Figure 8: Capacitance Characteristics

Figure 9: Current De-rating

Figure 10: Power De-rating

Figure 11: Single Pulse Power Rating, Junction-to-Case

Figure 12: Maximum Safe Operating Area



Typical Electrical & Thermal Characteristics

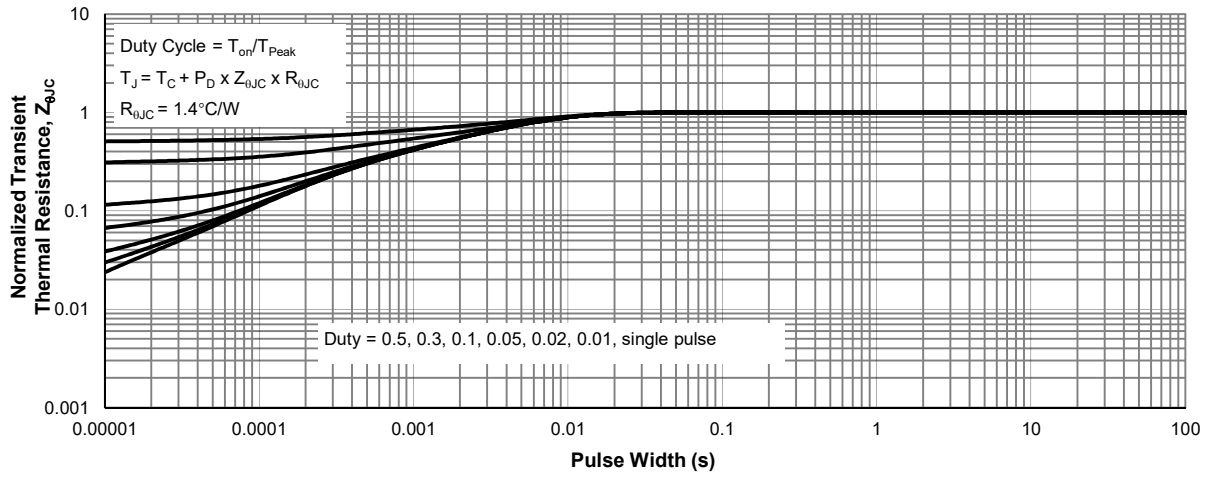
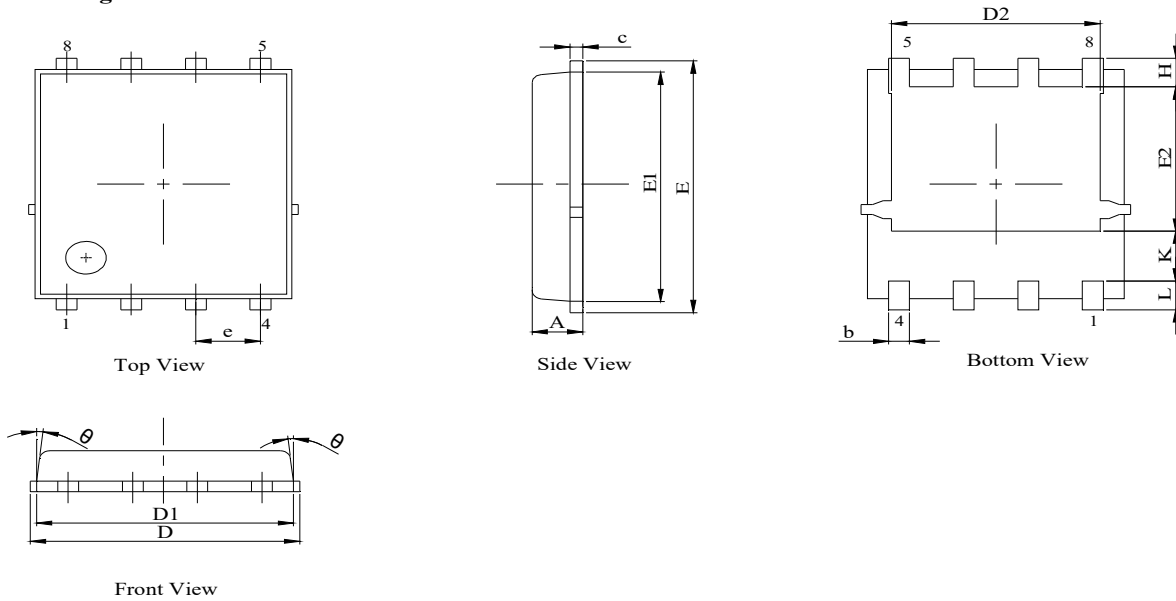
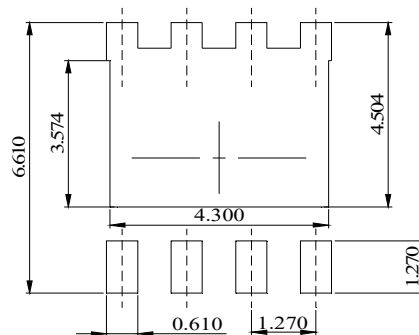


Figure 13: Normalized Maximum Transient Thermal Impedance

PDFN5x6-8L Package Information
Package Outline

NOTES:

1. Dimension and tolerance per ASME Y14.5M, 1994.
2. All dimensions in millimeter (angle in degree).
3. Dimensions $D1$ and $E1$ do not include mold flash protrusions or gate burrs.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
b	0.31	0.41	0.51
c	0.20	0.25	0.30
D	5.00	5.20	5.40
D1	4.95	5.05	5.15
D2	4.00	4.10	4.20
E	6.05	6.15	6.25
E1	5.50	5.60	5.70
E2	3.42	3.53	3.63
e	1.27BSC		
H	0.60	0.70	0.80
L	0.50	0.70	0.80
θ	-	-	10°

Recommended Soldering Footprint


DIMENSIONS: MILLIMETERS

单击下面可查看定价，库存，交付和生命周期等信息

[>>JW\(捷捷微\)](#)