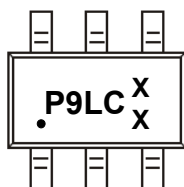


P-Channel Enhancement Mode MOSFET
Feature

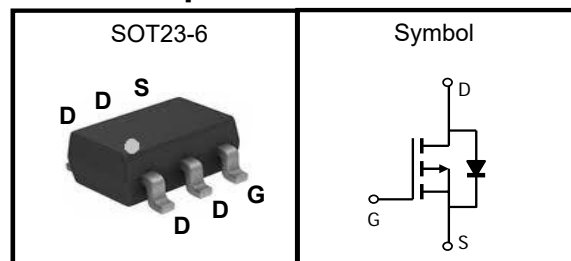
- Improved dv/dt capability
- Fast switching

Applications

- Load Switch for Portable Devices
- DC/DC Converters

Marking


P9LC=Device code
XX=Factory Code

Pin Description


V_{DSS}	-38	V
$R_{DS(ON)-Max}$	45	m Ω
I_D	-7	A

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-38	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-7	A
Drain Current-Continuous($T_C=100^\circ\text{C}$)	I_D	-4.5	A
Pulsed Drain Current	I_{DM}	-25	A
Maximum Power Dissipation	P_D	3	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ\text{C}$

Thermal Characteristic

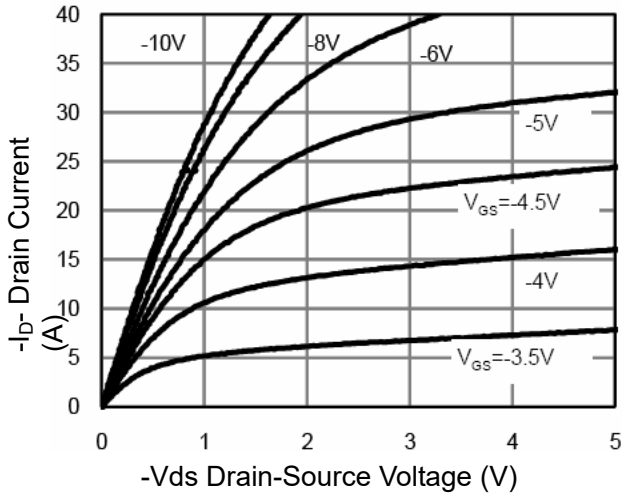
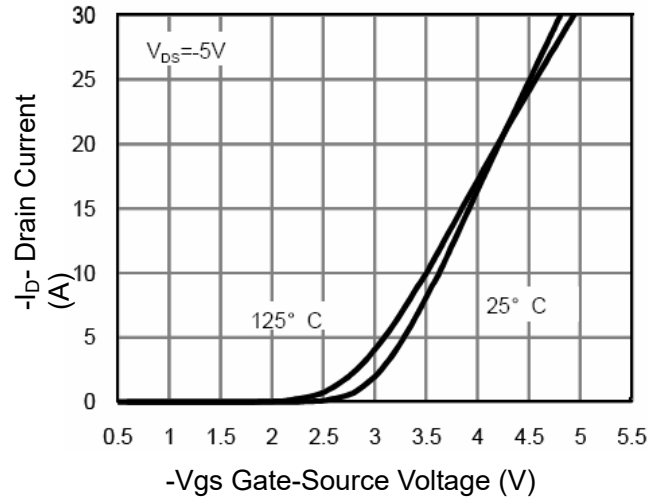
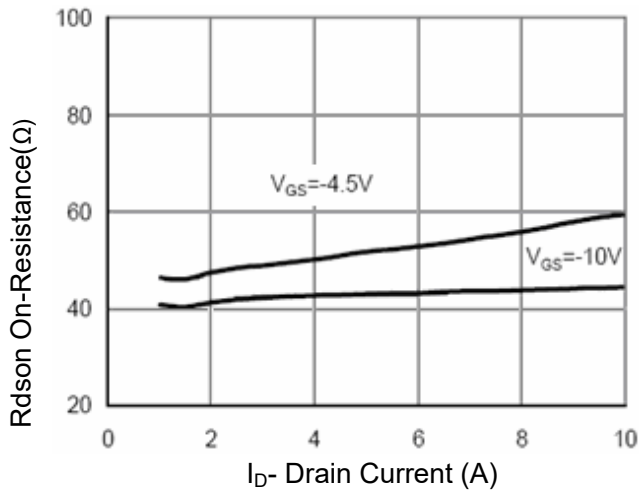
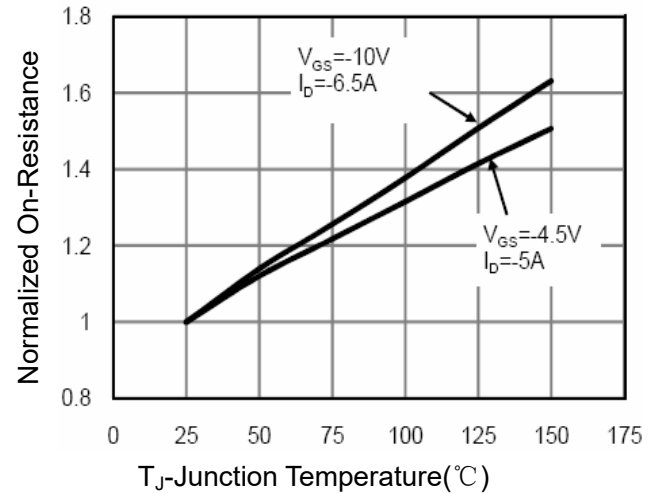
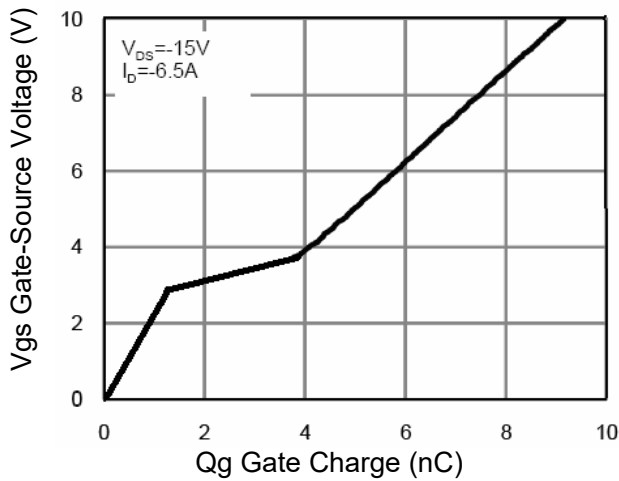
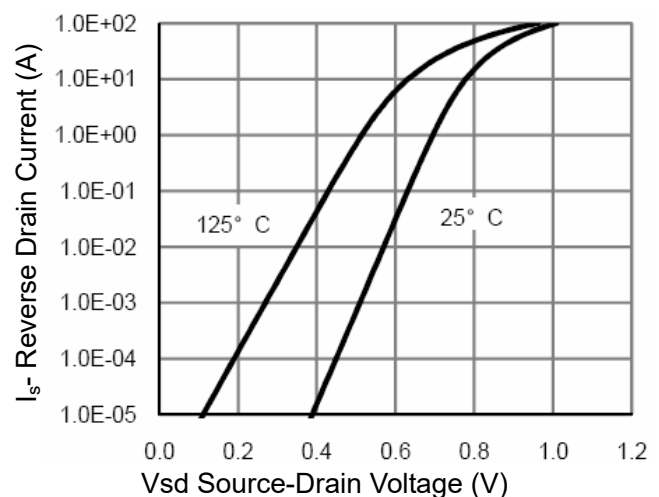
Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{\theta JA}$	83.3	$^\circ\text{C/W}$
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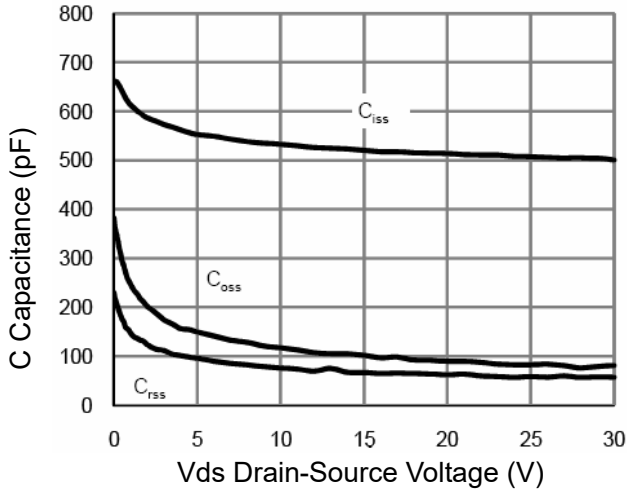
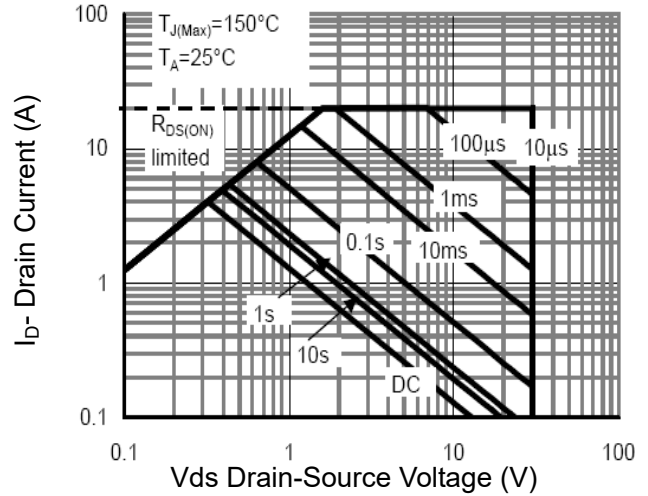
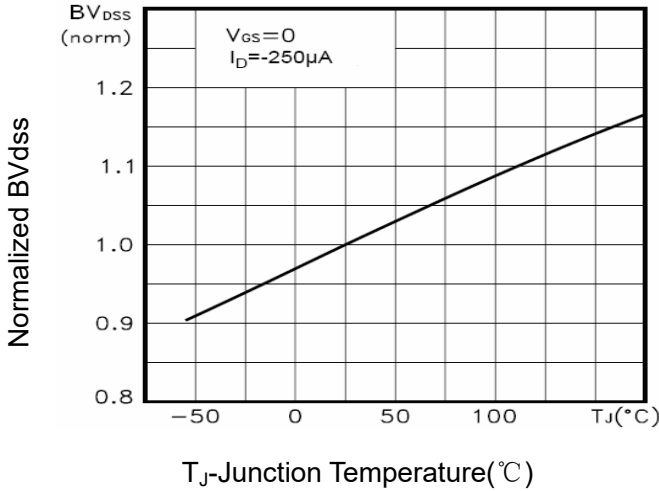
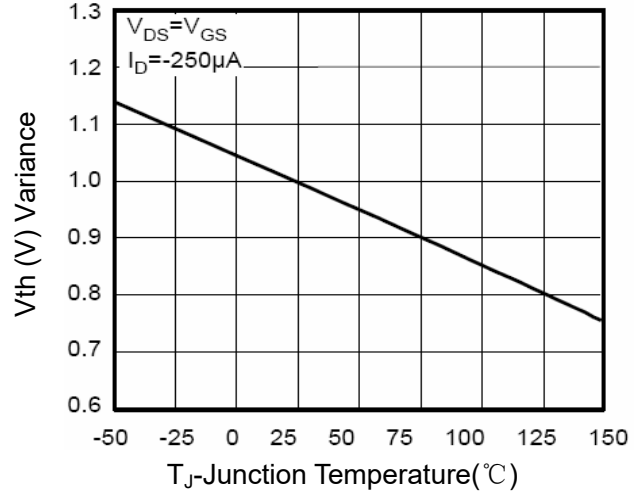
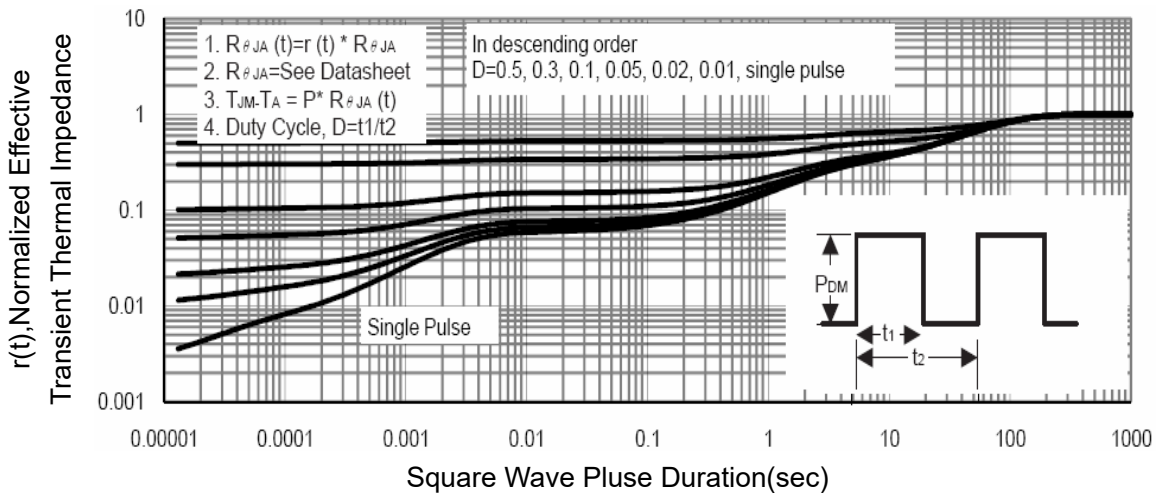
**P-Channel Enhancement Mode MOSFET****Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**

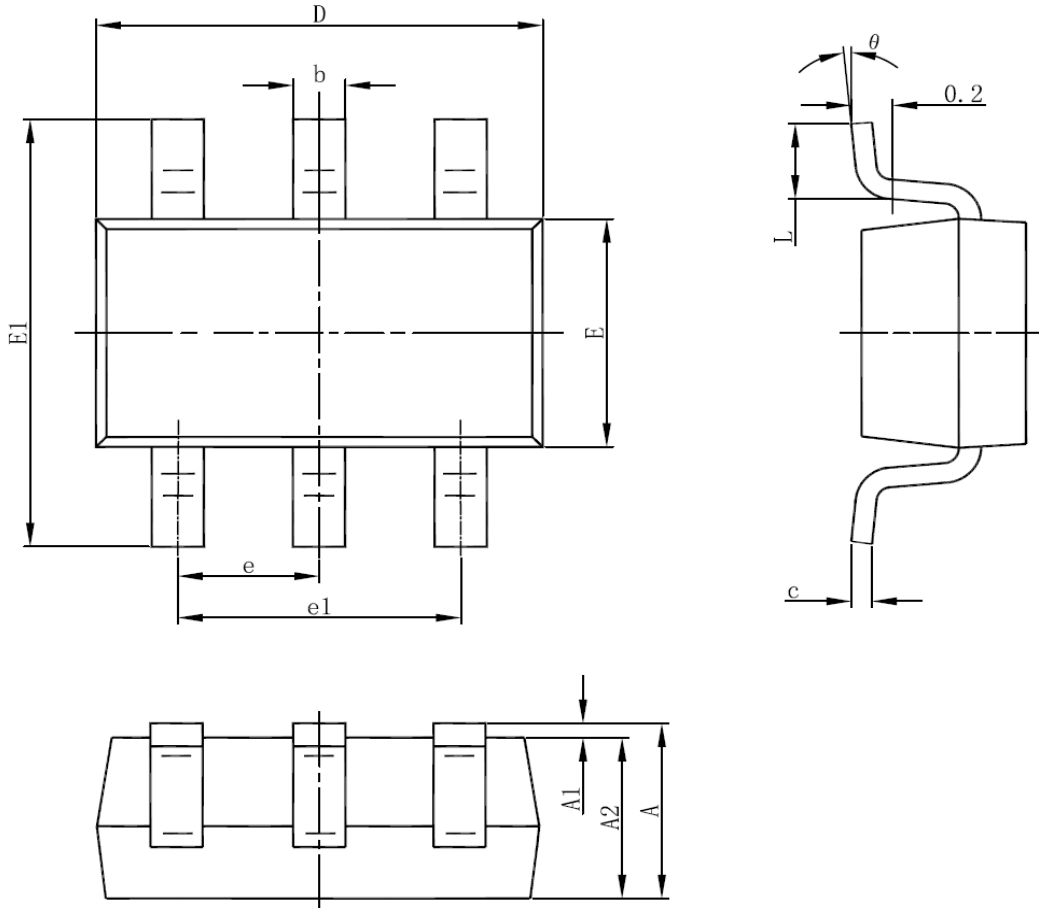
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-38	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-35V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.6	-2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-6.5A$	-	40	45	m Ω
		$V_{GS}=-4.5V, I_D=-5A$	-	53	72	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-2.5A$	12	-	-	S
Dynamic Characteristics (Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V,$ $F=1.0MHz$	-	530	-	PF
Output Capacitance	C_{oss}		-	100	-	PF
Reverse Transfer Capacitance	C_{rss}		-	62	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-15V, I_D=-4A$ $V_{GS}=-10V, R_{GEN}=3\Omega$	-	7.5	-	nS
Turn-on Rise Time	t_r		-	5.5	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	19	-	nS
Turn-Off Fall Time	t_f		-	7	-	nS
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-6.5A,$ $V_{GS}=-10V$	-	9.6	-	nC
Gate-Source Charge	Q_{gs}		-	1.8	-	nC
Gate-Drain Charge	Q_{gd}		-	2.3	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=-2A$	-	-	-1.2	V
Diode Forward Current (Note 2)	I_S		-	-	-7	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

P-Channel Enhancement Mode MOSFET
Typical Characteristics

Figure 1 Output Characteristics

Figure 2 Transfer Characteristics

Figure 3 Rdson- Drain Current

Figure 4 Rdson-Junction Temperature

Figure 5 Gate Charge

Figure 6 Source- Drain Diode Forward

P-Channel Enhancement Mode MOSFET

Figure 7 Capacitance vs Vds

Figure 8 Safe Operation Area

Figure 9 BV_{DSS} vs Junction Temperature

Figure 10 V_{GS(th)} vs Junction Temperature

Figure 11 Normalized Maximum Transient Thermal Impedance

P-Channel Enhancement Mode MOSFET
SOT23-6 Package Outline Data


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°