

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	40mΩ@10V	6A
	45mΩ@4.5V	
-100V	90mΩ@-10V	-6A
	100mΩ@-4.5V	

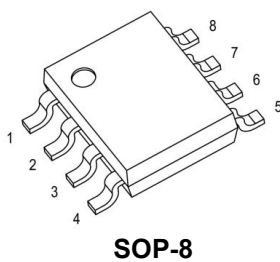
Feature

- N-Channel
 $V_{DS} = 100V, I_D = 6A$
 $R_{DS(ON)} < 50m\Omega @ V_{GS} = 10V$
 $R_{DS(ON)} < 60m\Omega @ V_{GS} = 4.5V$
- P-Channel
 $V_{DS} = -100V, I_D = -6A$
 $R_{DS(ON)} < 115m\Omega @ V_{GS} = -10V$
 $R_{DS(ON)} < 135m\Omega @ V_{GS} = -4.5V$
- High power and current handling capability
- Surface mount package

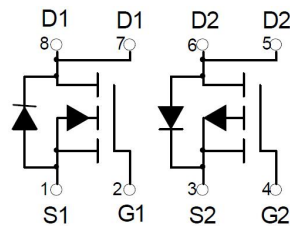
Application

- Load Switch
- Battery Switch
- Power Management
- Motor Control

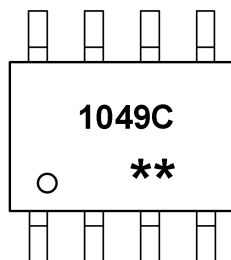
Package



Circuit diagram



Marking



1049C : Product code
 ** : Week code.

Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value		Unit
		N-Channel	P-Channel	
Drain-Source Voltage	V_{DS}	100	-100	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current	I_D	6	-6	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	24	-24	A
Maximum Power Dissipation	P_D	1.8	3	W
Thermal Resistance from Junction to Ambient($t \leq 10s$)	$R_{\theta JA}$	69.5	41.7	$^{\circ}C/W$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	-55 To 150	$^{\circ}C$

N-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$	-	40	50	m Ω
		$V_{GS} = 4.5V, I_D = 3A$	-	45	60	
Dynamic Characteristics⁽³⁾						
Input Capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0V, f = 1MHz$	-	2960	-	PF
Output Capacitance	C_{oss}		-	94	-	
Reverse Transfer Capacitance	C_{rss}		-	52	-	
Switching Characteristics⁽³⁾						
Turn-on Delay Time	$t_d(on)$	$V_{DD} = 50V, V_{GS} = 10V, R_G = 3\Omega, I_D = 5A$	-	5.3	-	nS
Turn-on Rise Time	t_r		-	7.1	-	
Turn-Off Delay Time	$t_d(off)$		-	15.8	-	
Turn-Off Fall Time	t_f		-	4.8	-	
Total Gate Charge	Q_g	$V_{DS} = 50V, V_{GS} = 4.5V, I_D = 6A$	-	75	-	nC
Gate-Source Charge	Q_{gs}		-	8.6	-	
Gate-Drain Charge	Q_{gd}		-	19	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ⁽²⁾	V_{SD}	$V_{GS} = 0V, I_S = 1A, T_J = 25^{\circ}C$	-	-	1.2	V

P-Channel Electrical characteristics (T_A=25 °C, unless otherwise noted)

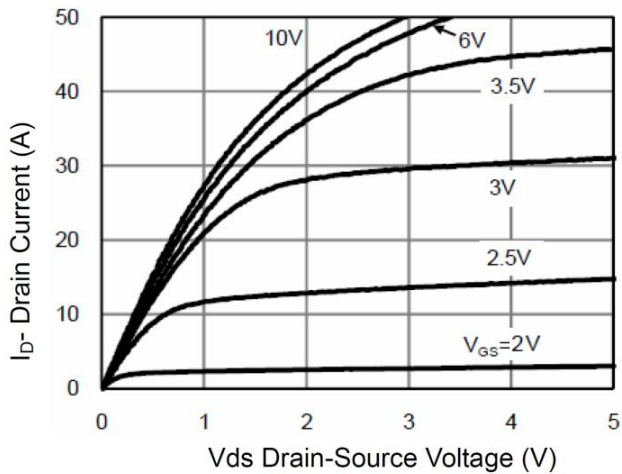
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -80V, V _{GS} = 0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.8	-2.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = -10V, I _D = -5A	-	90	115	mΩ
		V _{GS} = -4.5V, I _D = -3A	-	100	135	
Dynamic Characteristics ⁽³⁾						
Input Capacitance	C _{iss}	V _{DS} = -50V, V _{GS} = 0V, f = 1MHz	-	2134	-	PF
Output Capacitance	C _{oss}		-	567	-	
Reverse Transfer Capacitance	C _{rss}		-	135	-	
Switching Characteristics ⁽³⁾						
Turn-on Delay Time	t _{d(on)}	V _{DD} = -50V, V _{GS} = -10V, R _G = 2.5 Ω, I _D = -5A	-	8	-	nS
Turn-on Rise Time	t _r		-	15	-	
Turn-Off Delay Time	t _{d(off)}		-	23	-	
Turn-Off Fall Time	t _f		-	9	-	
Total Gate Charge	Q _g	V _{DS} = -50V, V _{GS} = -10V, I _D = -5A	-	60	-	nC
Gate-Source Charge	Q _{gs}		-	15	-	
Gate-Drain Charge	Q _{gd}		-	28	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage ⁽²⁾	V _{SD}	V _{GS} = 0V, I _S = -1A, T _J = 25°C	-	-	-1.2	V

Notes:

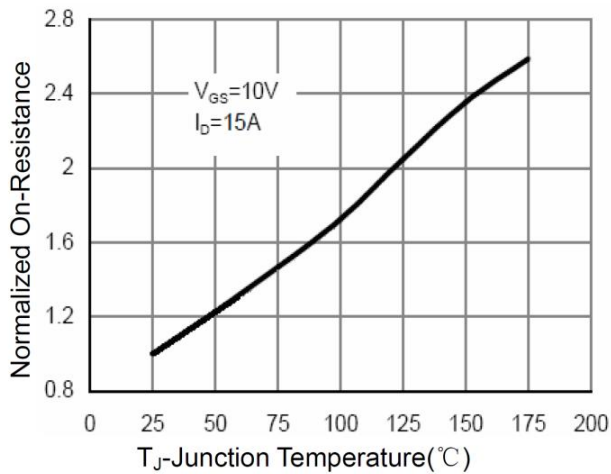
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
3. Guaranteed by design, not subject to production



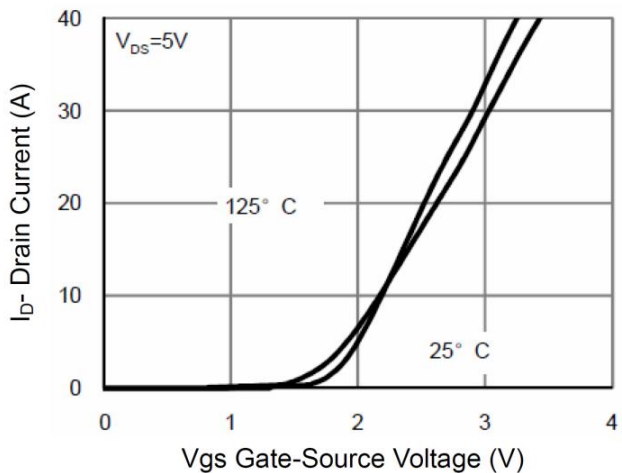
N-Channel Typical Characteristics



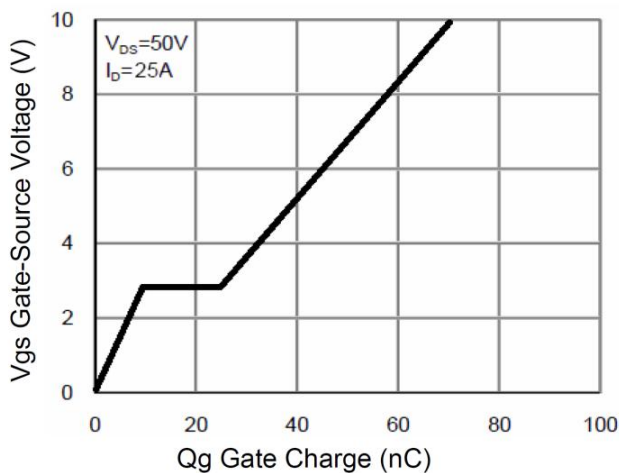
Output Characteristics



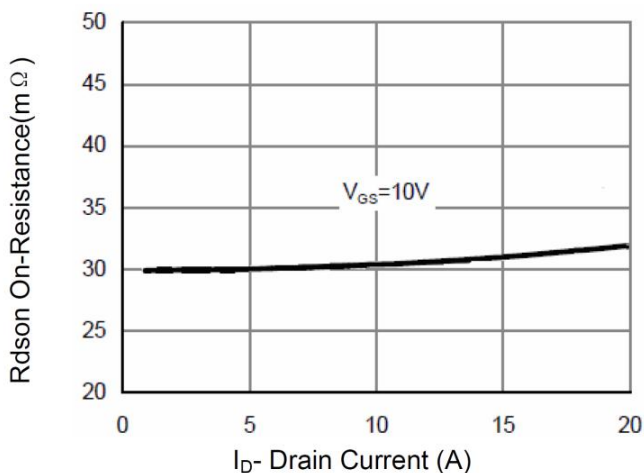
Rdson-Junction Temperature



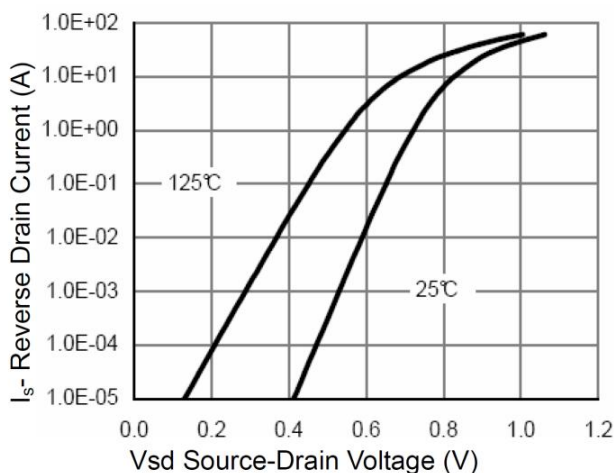
Transfer Characteristics



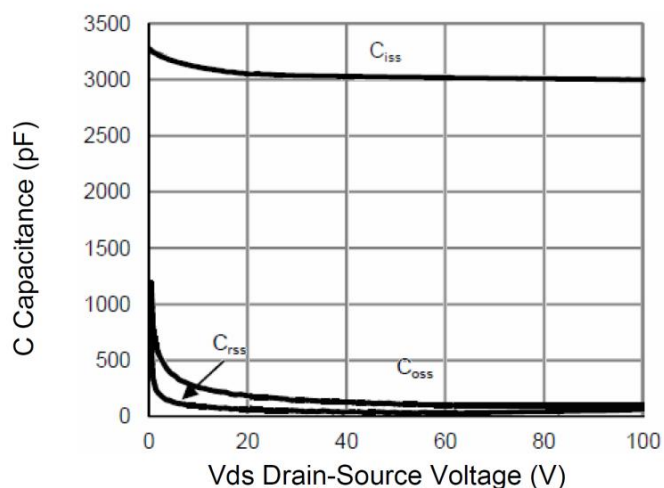
Gate Charge



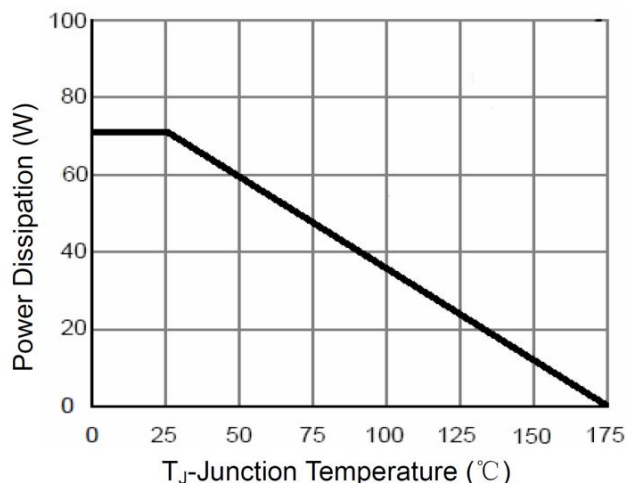
Rdson- Drain Current



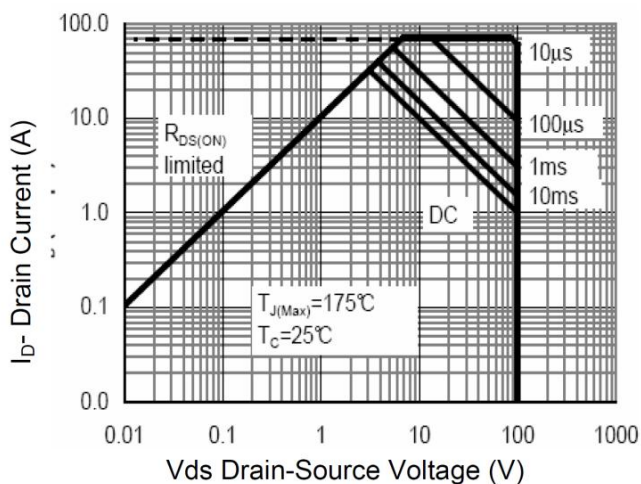
Source- Drain Diode Forward



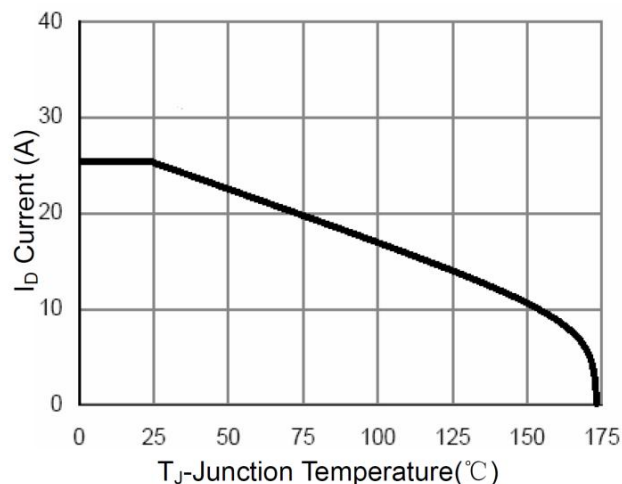
Capacitance vs Vds



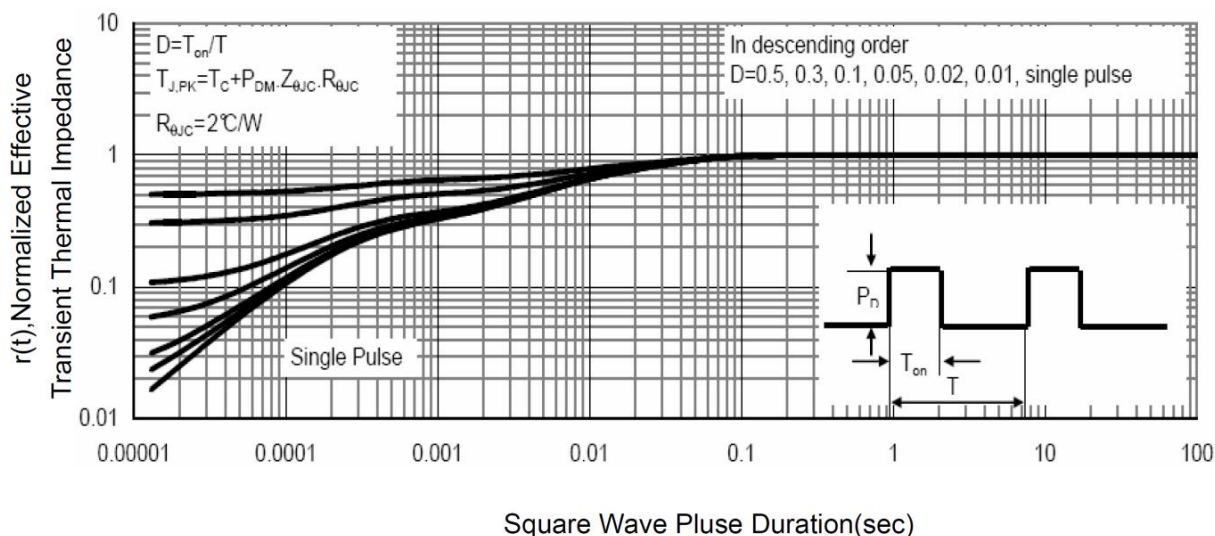
Power De-rating



Safe Operation Area



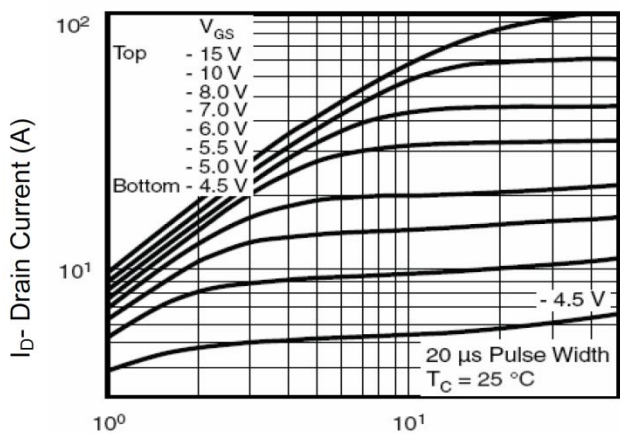
ID Current- Junction Temperature



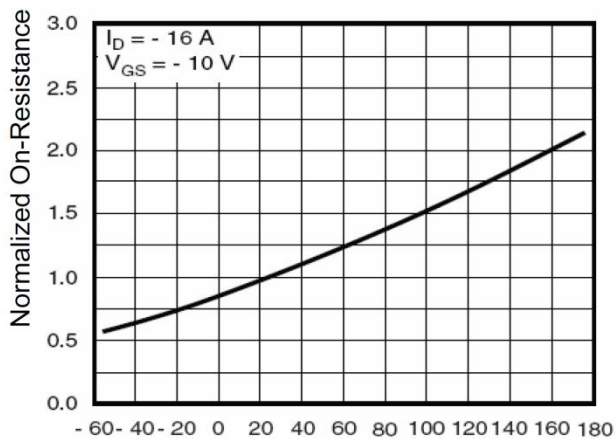
Normalized Maximum Transient Thermal Impedance



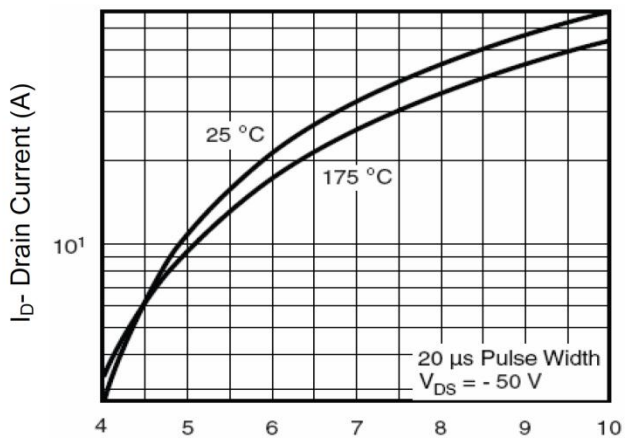
P-Channel Typical Characteristics



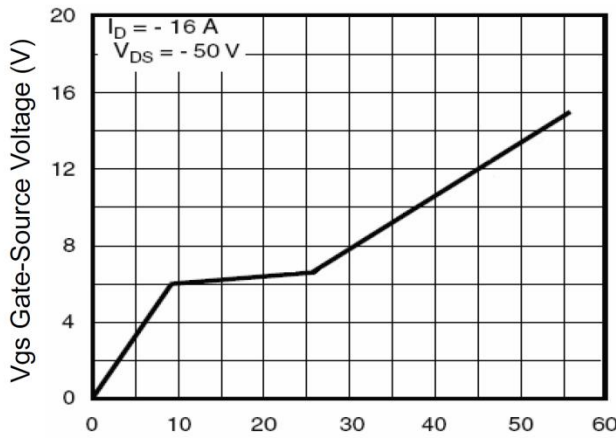
Output Characteristics



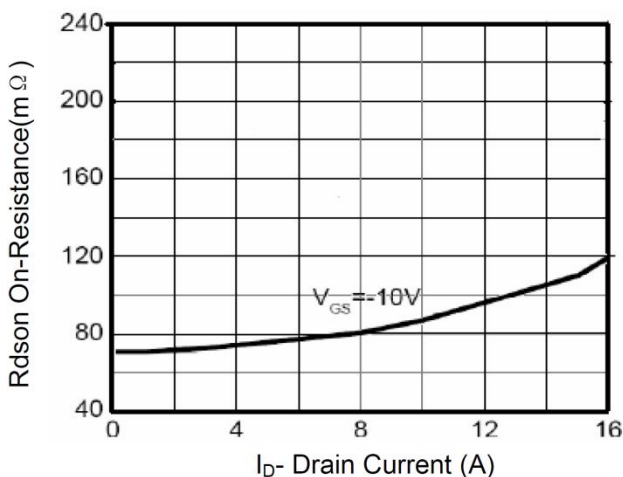
Rdson-Junction Temperature



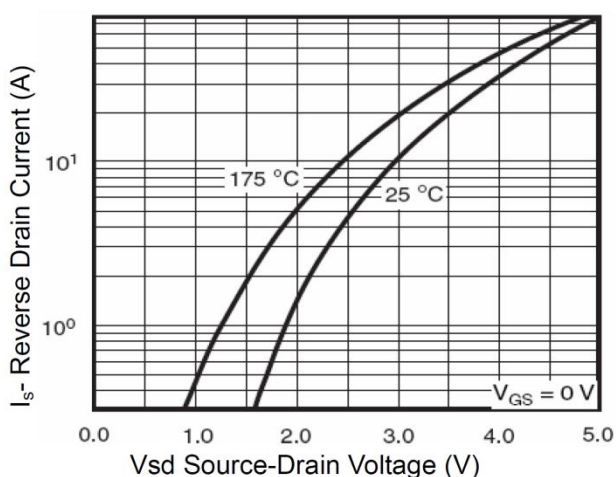
Transfer Characteristics



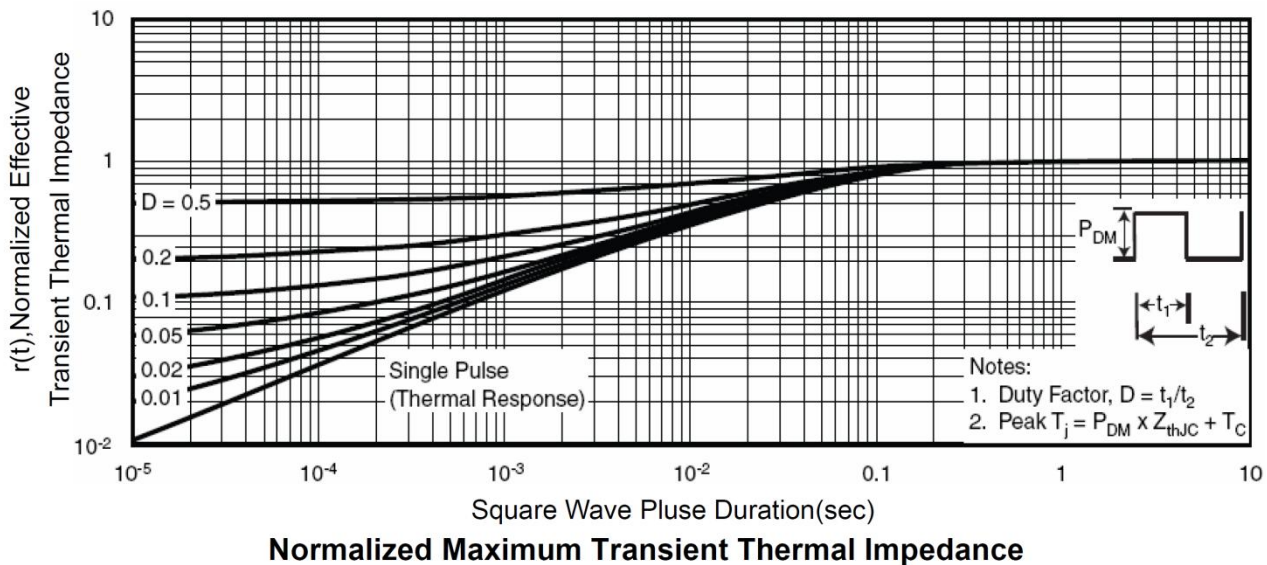
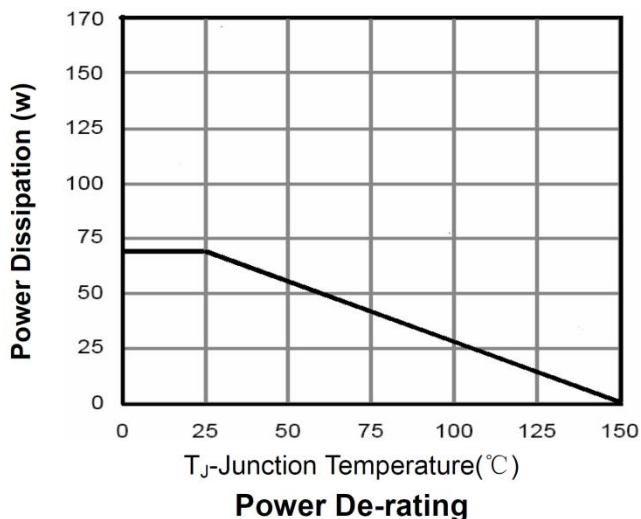
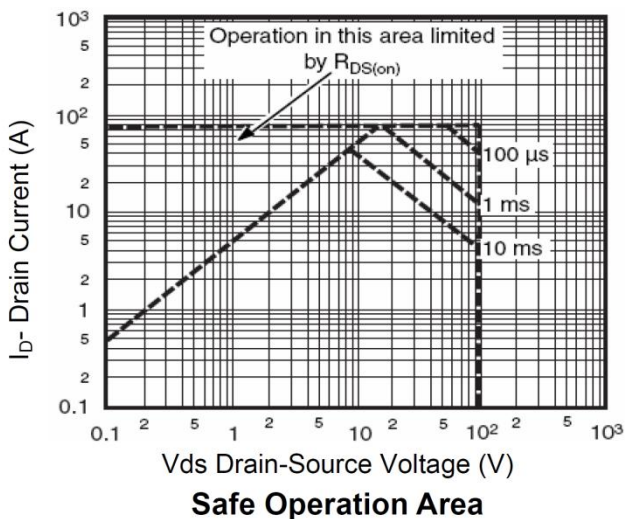
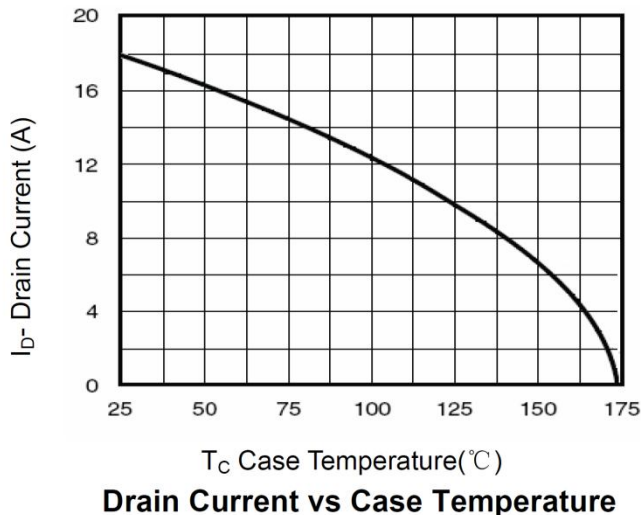
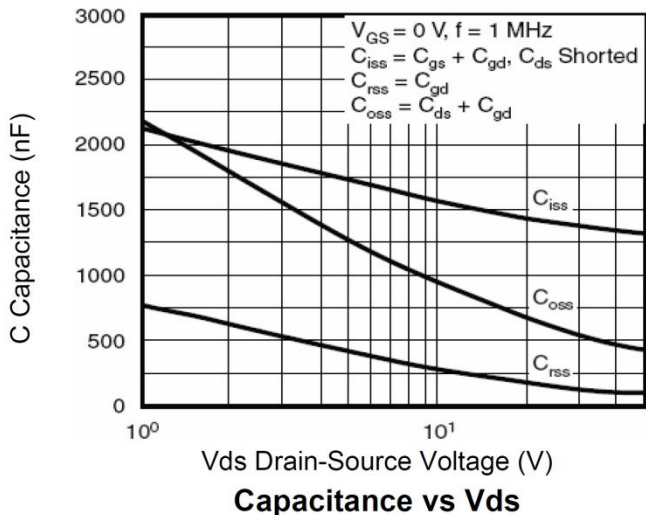
Gate Charge



Rdson- Drain Current

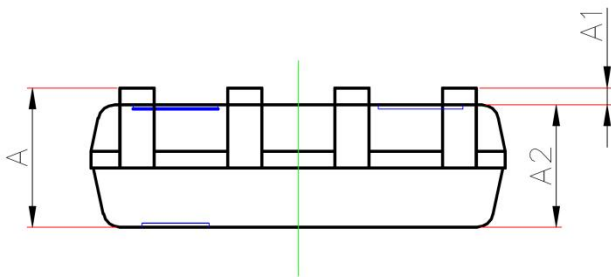
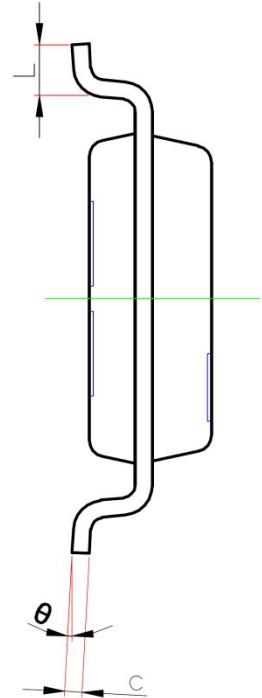
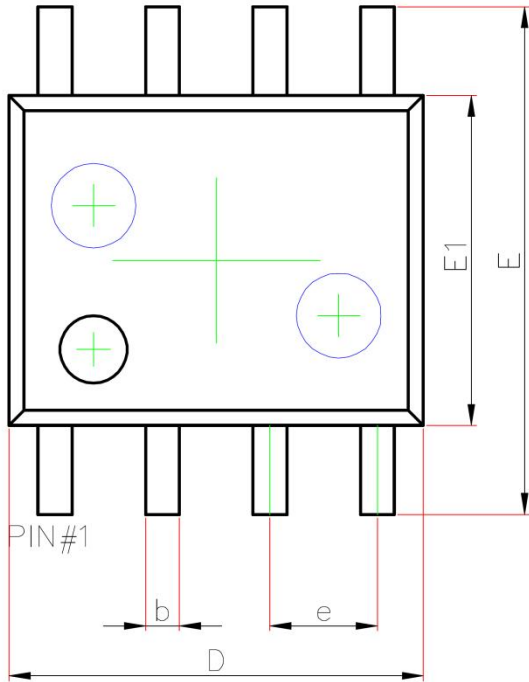


Source- Drain Diode Forward





SOP-8L Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°

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