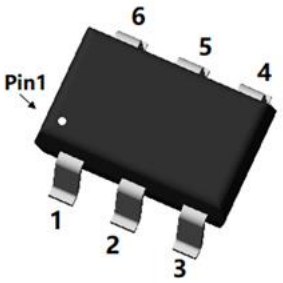
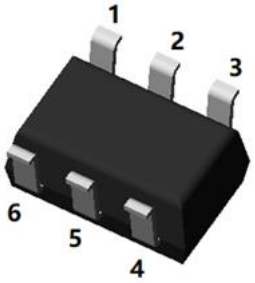
N-Channel and P-Channel Complementary MOSFET

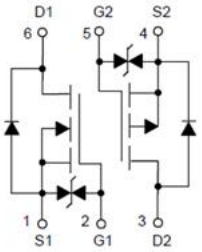


Top View



Bottom View

SOT-363



Product Summary

NMOS

- V_{DS} 60V
- I_D 0.23A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜2.5Ω
- $R_{DS(ON)}$(at V_{GS}=4.5V) ＜3Ω

PMOS

- V_{DS} -60V
- I_D -0.22A
- $R_{DS(ON)}$(at V_{GS}=-10V) ＜3Ω
- $R_{DS(ON)}$(at V_{GS}=-4.5V) ＜3.5Ω
- Gate-Source ESD rating up to 2KV (HBM)

General Description

- Voltage controlled small signal switch
- Low input Capacitance
- High Speed switching
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Battery operated systems
- Solid-state relays
- Direct logic-level interface：TTL/CMOS

■ Limiting Values

Parameter	Conditions			Symbol	NMOS		PMOS		Unit
					Min	Max	Min	Max	
Drain-source Voltage				V_{DS}	-	60	-	-60	V
Gate-source Voltage				V_{GS}	-20	20	-20	20	
Continuous Drain Current (Note 1,2)	Steady-State	T_A=25℃	NMOS:V_{GS}=10V，PMOS:V_{GS}=-10V	I_D	-	0.23	-	-0.22	A
		T_A=100℃			-	0.14	-	-0.14	
Pulsed Drain Current	T_A=25℃,t_p≤10μs			I_{DM}	-	1	-	-1.4	
Maximum Body-Diode Continuous Current	T_A=25℃			I_S	-	0.23	-	-0.22	
Total Power Dissipation (Note 1,2)	Steady-State	T_A=25℃		P_D	-	0.27	-	0.28	W
		T_A=100℃			-	0.1	-	0.11	
Junction and Storage Temperature Range				T_J ,T_{STG}	-55	150	-55	150	℃

■Thermal Resistance

Parameter		Symbol	NMOS		PMOS		Units
			Typ	Max	Typ	Max	
Thermal Resistance Junction-to-Ambient (Note 2)	Steady-State	$R_{\theta JA}$	-	464	-	442	℃/W

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
L7252ADWJK	F2	75A	3000	30000	120000	7“ reel

■ NMOS Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA,Tj=25℃	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V,Tj=25℃	-	-	1	μA
		V_{DS}=60V,V_{GS}=0V,Tj=150℃	-	-	100	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V,Tj=25℃	-	-	±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA,Tj=25℃	1	1.5	2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=0.2A,Tj=25℃	-	1.6	2.5	Ω
		V_{GS}=4.5V,I_D=0.1A,Tj=25℃	-	1.8	3	
Diode Forward Voltage	V_{SD}	I_S=0.2A,V_{GS}=0V,Tj=25℃	-	0.86	1.2	V
Gate Resistance	R_G	f=1MHz,Tj=25℃	-	120	-	Ω
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=30V,V_{GS}=0V,f=1MHz,Tj=25℃	-	15.6	-	pF
Output Capacitance	C_{oss}		-	3.9	-	
Reverse Transfer Capacitance	C_{rss}		-	0.9	-	
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=30V,I_D=0.3A,Tj=25℃	-	0.79	-	nC
Gate-Source Charge	Q_{gs}		-	0.07	-	
Gate-Drain Charge	Q_{gd}		-	0.1	-	
Reverse Recovery Charge	Q_{rr}	I_F=0.3A,di/dt=100A/μs,V_{GS}=0V,V_R=30V, Tj=25℃	-	4	-	nC
Reverse Recovery Time	t_{rr}		-	11	-	ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DS}=30V,I_D=0.3A,R_{GEN}=30Ω, Tj=25℃	-	3	-	ns
Turn-on Rise Time	t_r		-	3	-	
Turn-off Delay Time	$t_{D(off)}$		-	11	-	
Turn-off Fall Time	t_f		-	40	-	

■ PMOS Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=-250μA,Tj=25℃	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V,V_{GS}=0V,Tj=25℃	-	-	-1	μA
		V_{DS}=-60V,V_{GS}=0V,Tj=150℃	-	-	-100	
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V,Tj=25℃	-	-	±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA,Tj=25℃	-1	-1.56	-2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-0.2A,Tj=25℃	-	2	3	Ω
		V_{GS}=-4.5V,I_D=-0.1A,Tj=25℃	-	2.4	3.5	
Diode Forward Voltage	V_{SD}	I_S=-0.2A,V_{GS}=0V,Tj=25℃	-	-0.86	-1.3	V
Gate Resistance	R_G	f=1MHz,Tj=25℃	-	900	-	Ω
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=-30V,V_{GS}=0V,f=1MHz,Tj=25℃	-	35.4	-	pF
Output Capacitance	C_{oss}		-	4.7	-	
Reverse Transfer Capacitance	C_{rss}		-	2.4	-	
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-30V,I_D=-0.4A,Tj=25℃	-	1.53	-	nC
Gate-Source Charge	Q_{gs}		-	0.17	-	
Gate-Drain Charge	Q_{gd}		-	0.23	-	
Reverse Recovery Charge	Q_{rr}	I_F=-0.4A,di/dt=100A/us,V_{GS}=0V, V_R=-30V,Tj=25℃	-	9	-	nC
Reverse Recovery Time	t_{rr}		-	15	-	ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=-10V,V_{DS}=-30V,I_D=-0.4A,R_{GEN}=3Ω, Tj=25℃	-	5.4	-	ns
Turn-on Rise Time	t_r		-	3.8	-	
Turn-off Delay Time	$t_{D(off)}$		-	32	-	
Turn-off Fall Time	t_f		-	34	-	

Note：

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. The value of $R_{\theta JA}$ is measured with the device mounted on the 40mm*40mm*1.1mm single layer FR-4 PCB board with 1 in^2 pad of 2oz. Copper, in the still air environment with T_A=25℃.The maximum allowed junction temperature of 150℃. The value in any given application depends on the user's specific board design.

■ NMOS Typical Electrical and Thermal Characteristics Diagrams

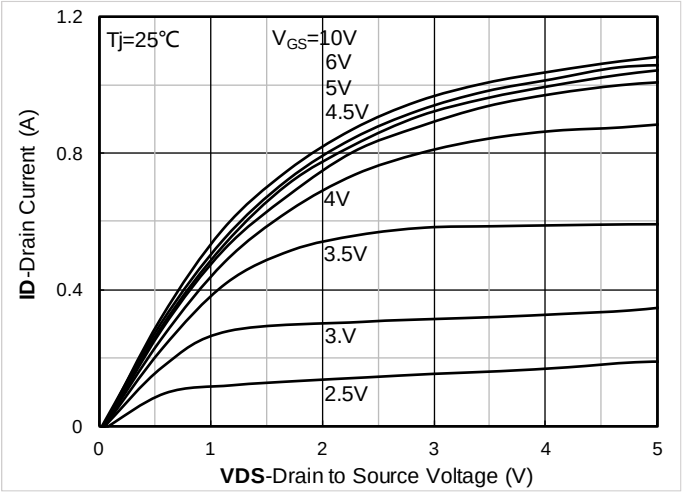


Figure 1. Output Characteristics; typical values

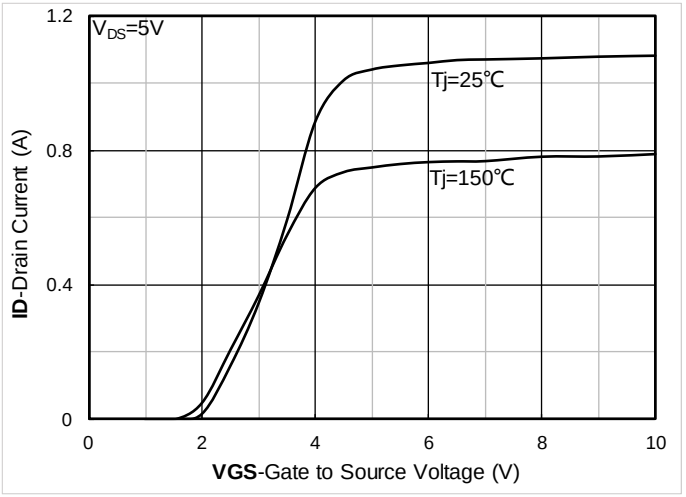


Figure 2. Transfer Characteristics; typical values

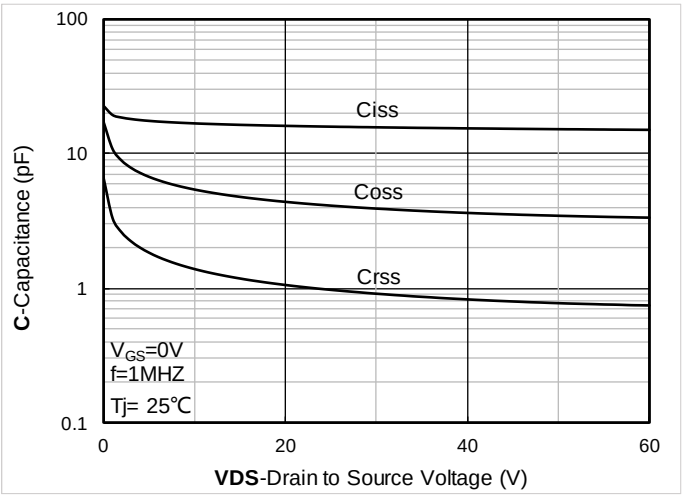


Figure 3. Capacitance Characteristics; typical values

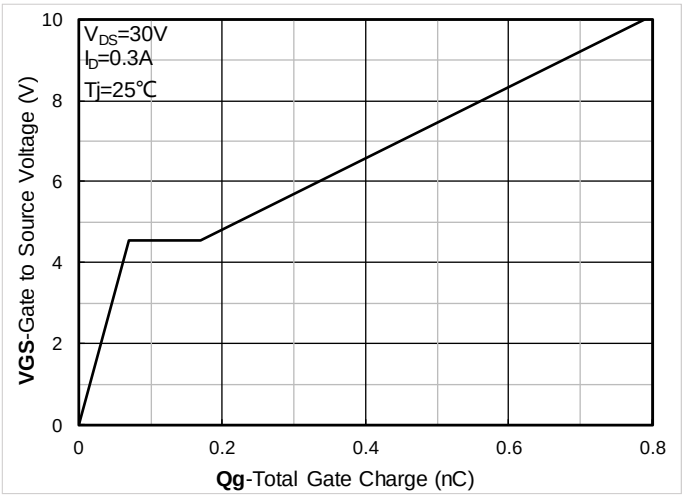


Figure 4. Gate Charge; typical values

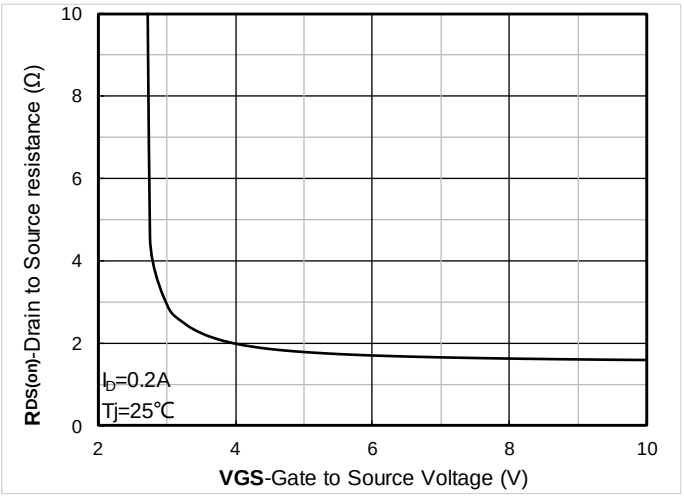


Figure 5. On-Resistance vs. Gate to Source Voltage; typical values

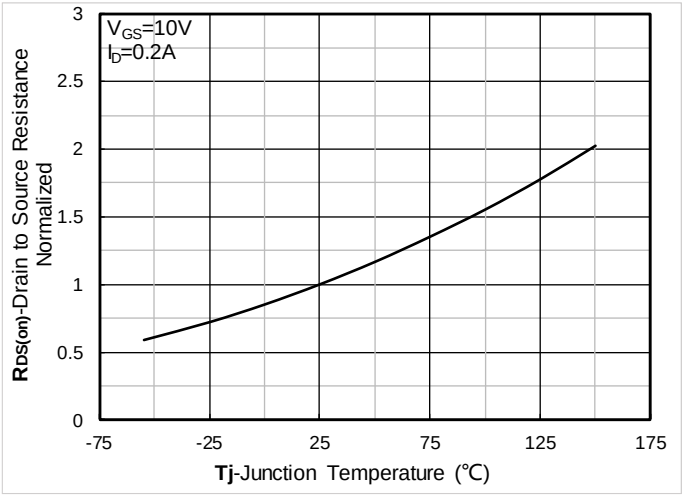


Figure 6. Normalized On-Resistance

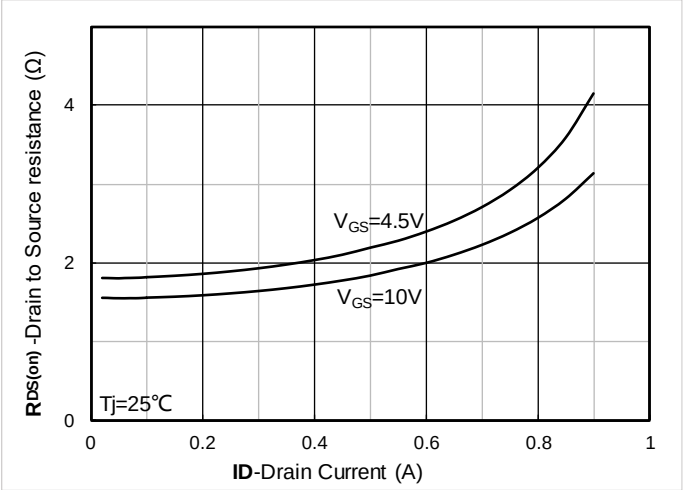


Figure 7. $R_{DS(on)}$ vs. Drain Current; typical values

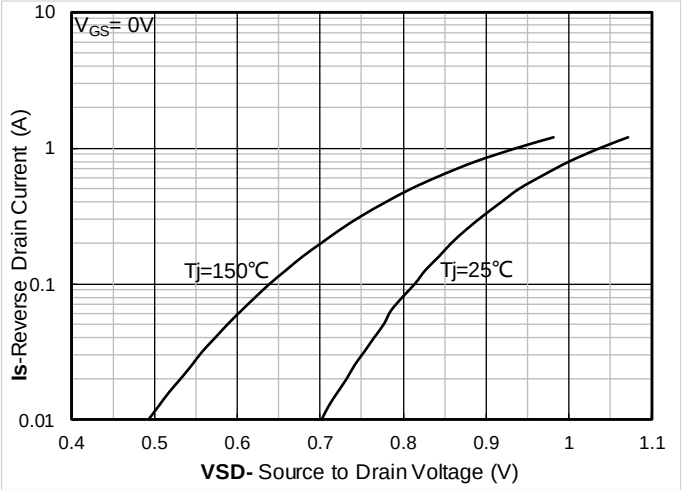


Figure 8. Forward characteristics of reverse diode; typical values

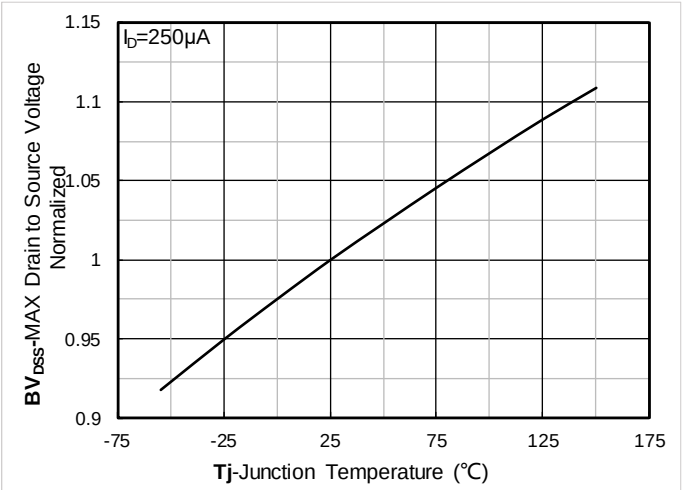


Figure 9. Normalized breakdown voltage

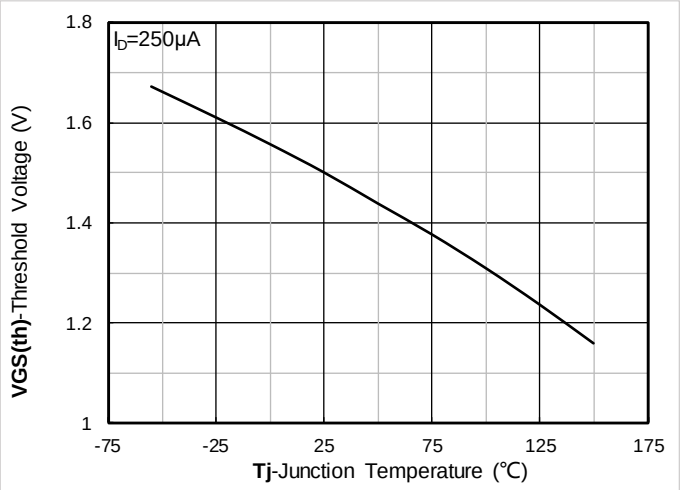


Figure 10. Gate Threshold voltage; typical values

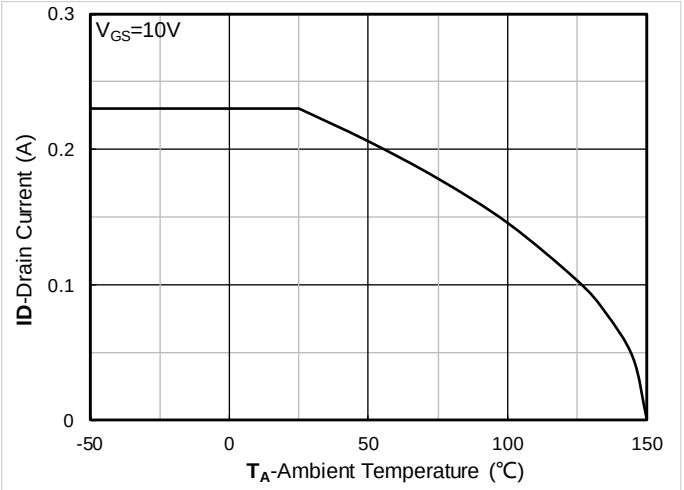


Figure 11. Current dissipation

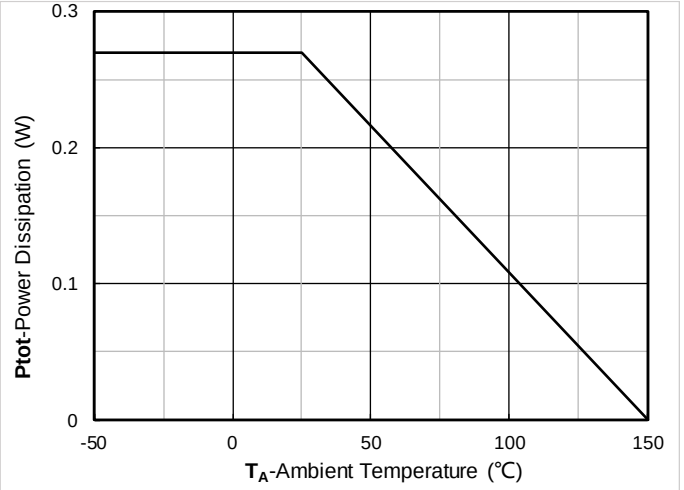


Figure 12. Power dissipation

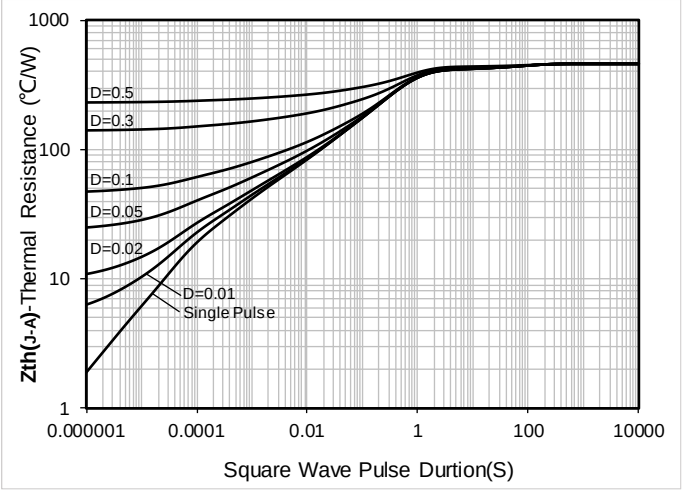


Figure 13. Maximum Transient Thermal Impedance

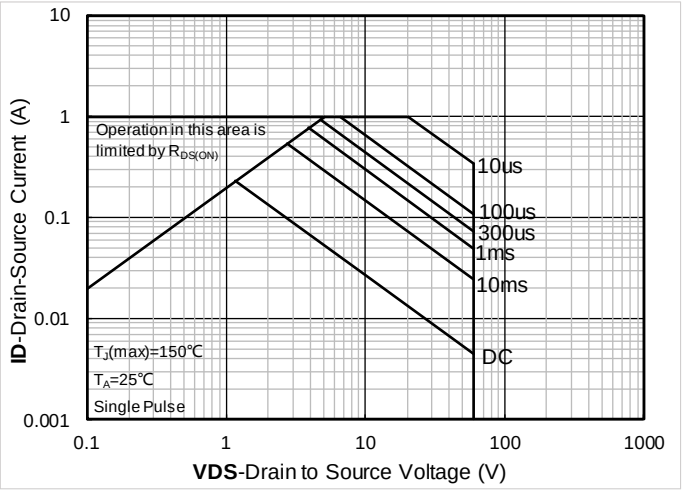


Figure 14. Safe Operation Area

■ PMOS Typical Electrical and Thermal Characteristics Diagrams

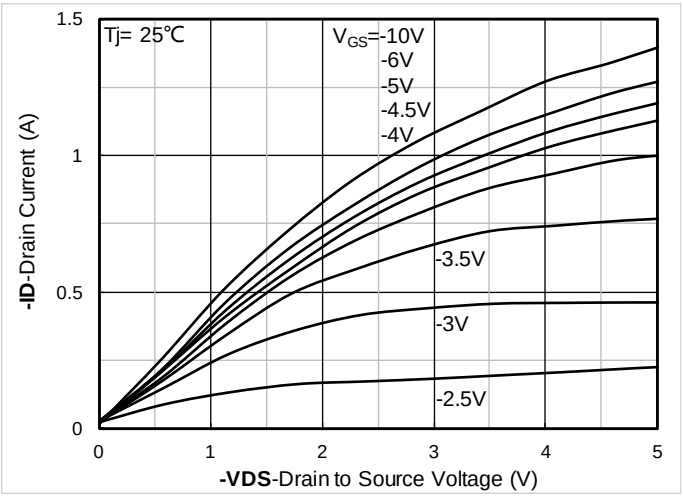


Figure 1. Output Characteristics; typical values

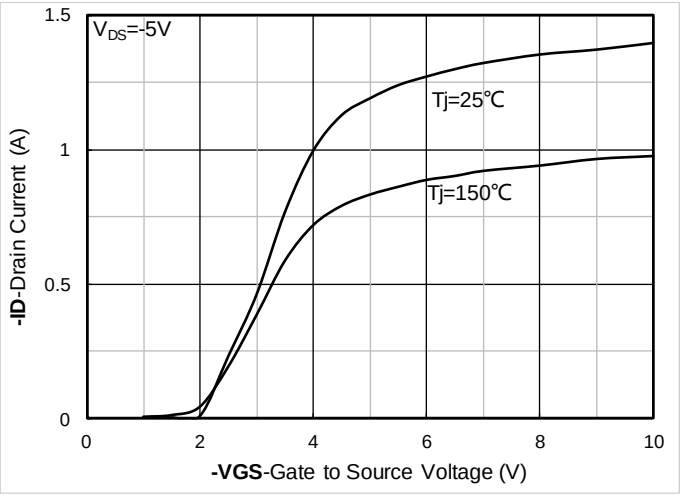


Figure 2. Transfer Characteristics; typical values

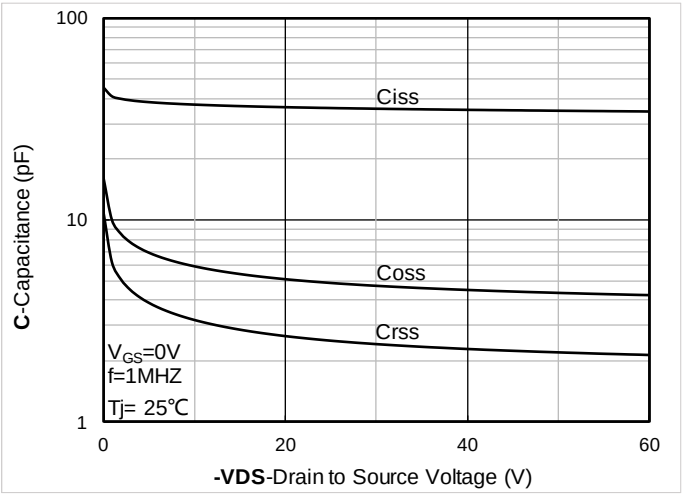


Figure 3. Capacitance Characteristics; typical values

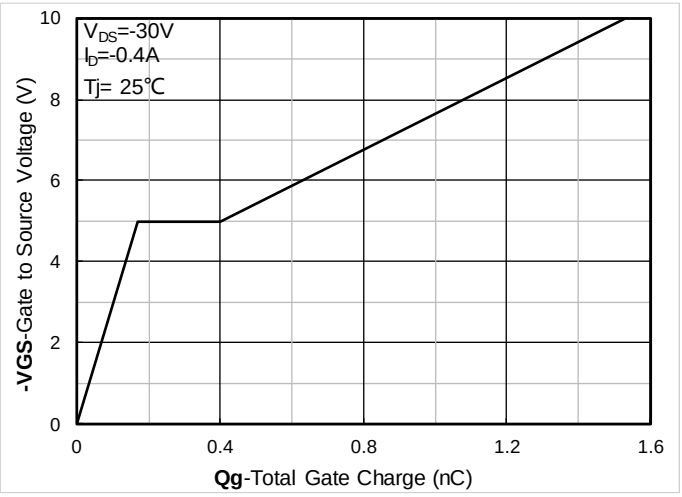


Figure 4. Gate Charge; typical values

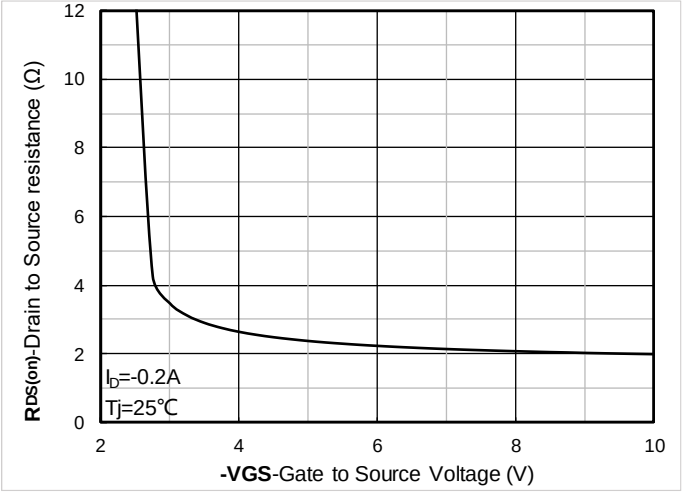


Figure 5. On-Resistance vs. Gate to Source Voltage; typical values

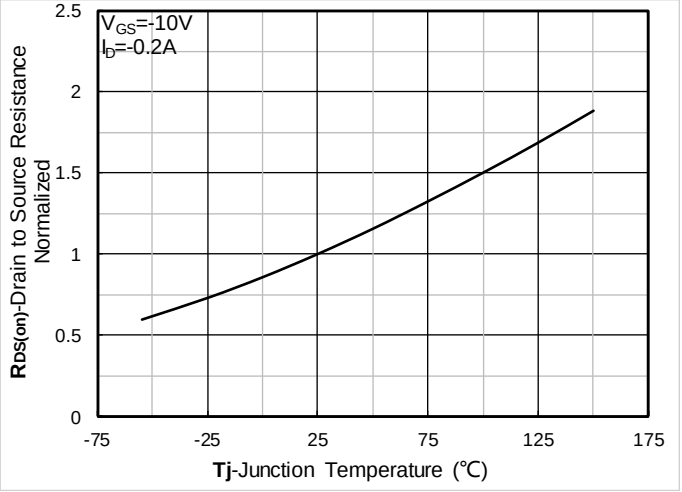


Figure 6. Normalized On-Resistance

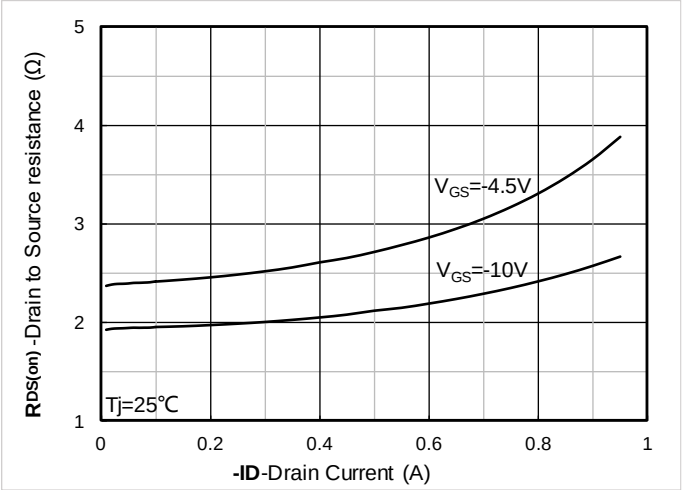


Figure 7. $R_{DS(on)}$ vs. Drain Current; typical values

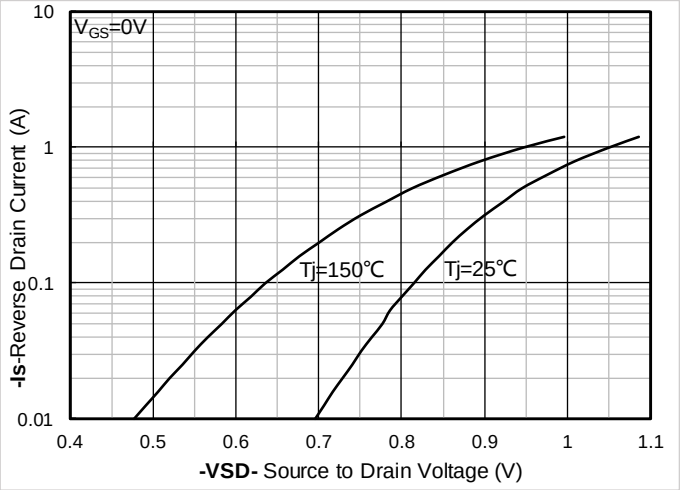


Figure 8. Forward characteristics of reverse diode; typical values

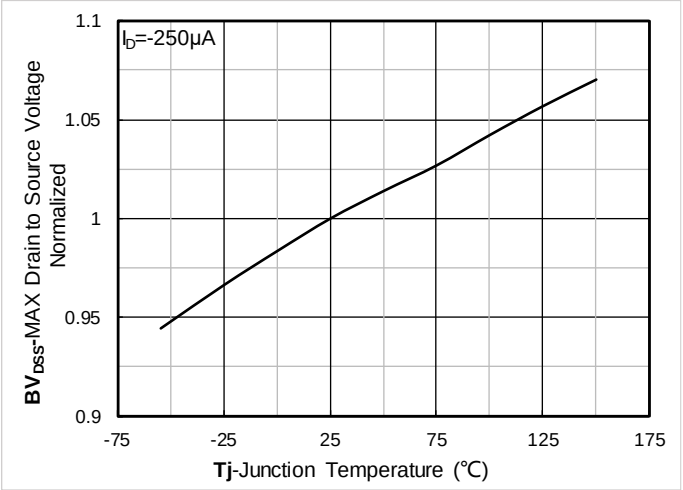


Figure 9. Normalized breakdown voltage

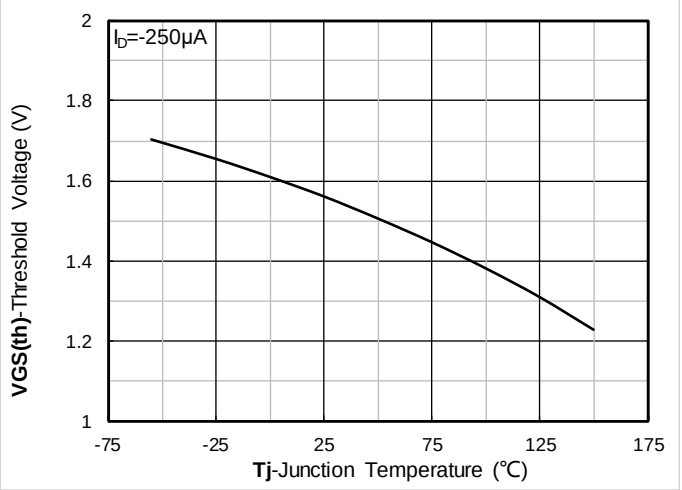


Figure 10. Gate Threshold voltage; typical values

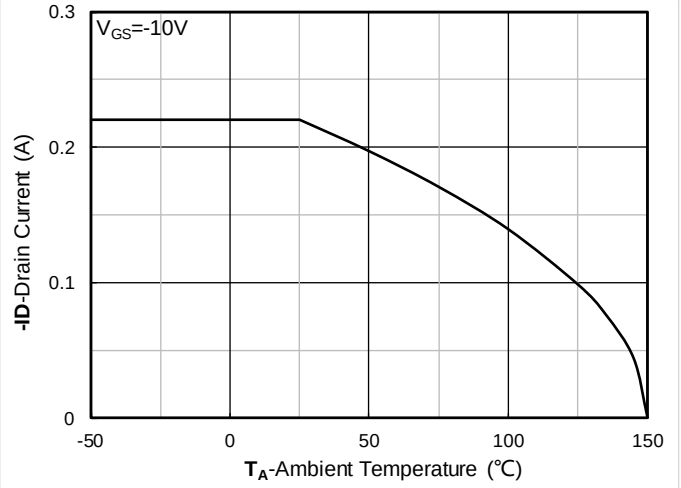


Figure 11. Current dissipation

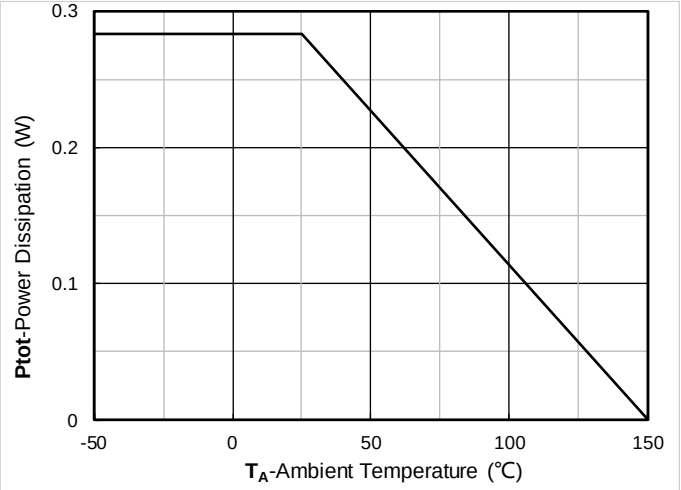


Figure 12. Power dissipation

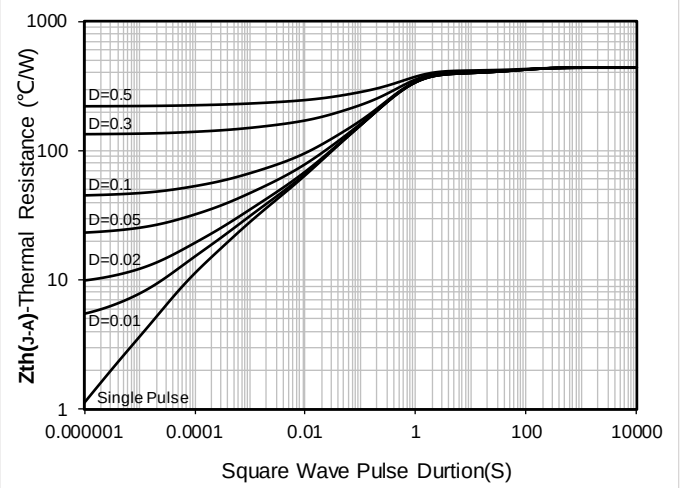


Figure 13. Maximum Transient Thermal Impedance

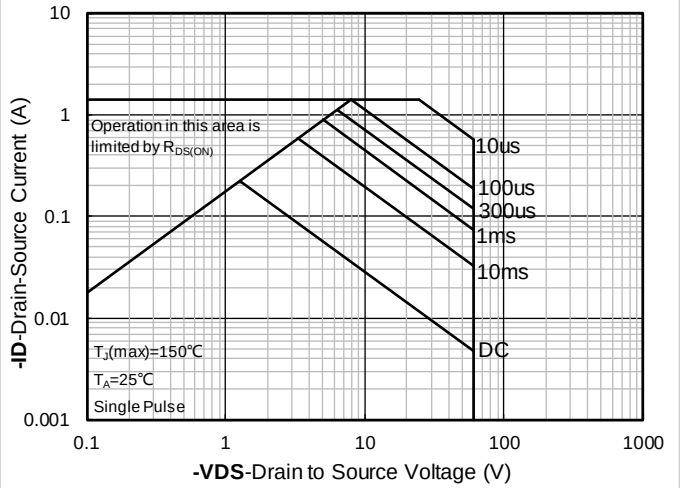
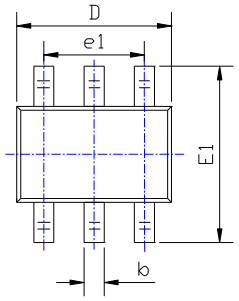
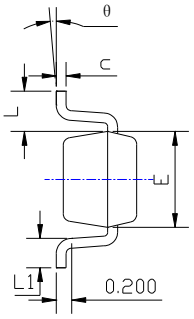


Figure 14. Safe Operation Area

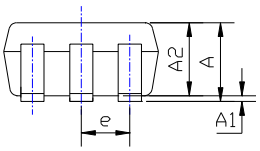
■ SOT-363 Package information



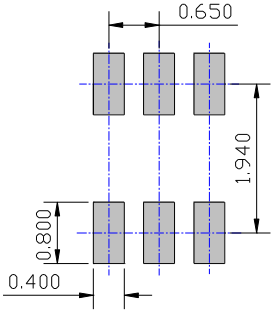
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT：mm

SUGGESTED SOLDER PAD LAYOUT

DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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