

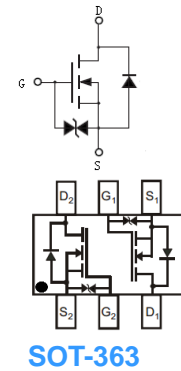
Features

- N-Channel switch with low $R_{DS(on)}$
- Operated at low logic level gate drive

HF

Mechanical Data

- Case: SOT-363
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL1014DW	SOT-363	3000 pcs / Tape & Reel	KM

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	30	V
Gate-to-Source Voltage	V_{GSS}	± 12	V
Continuous Drain Current	I_D	0.6	A
Pulsed Drain Current *1	I_{DM}	1.8	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_A = 25^\circ\text{C}$)	P_D	0.35	W
Thermal Resistance Junction-to-Air *2	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 30V, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 10V, V_{DS} = 0V$	-	-	± 3	μA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance ^{*3}	$V_{GS} = 4.5V, I_D = 0.6A$	-	335	420	m Ω
		$V_{GS} = 2.5V, I_D = 0.3A$	-	404	540	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.95	1.5	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 10V$ $f = 1.0MHz$	-	73	-	pF
C_{OSS}	Output Capacitance					
C_{RSS}	Reverse Transfer Capacitance					
Q_G	Total Gate-Charge	$V_{DS} = 15V$ $V_{GS} = 4.5V$ $I_D = 0.8A$	-	2.23	-	nC
Q_{GS}	Gate to Source Charge					
Q_{GD}	Gate to Drain (Miller) Charge					
Switching Characteristics ^{*4}						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DS} = 15V$ $V_{GS} = 4.5V$ $R_G = 51\Omega$ $I_D = 0.7A$	-	5	-	ns
t_r	Turn-on Rise Time					
$t_{d(OFF)}$	Turn-Off Delay Time					
t_f	Turn-Off Fall Time					
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage ^{*3}	$I_{SD} = 0.6A, V_{GS} = 0V$	-	0.9	1.2	V

Notes:

1. Repetitive rating: Pulse width limited by maximum junction temperature
2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. mounted on a 1 inch square pad of copper
3. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$
4. These parameters have no way to verify

Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

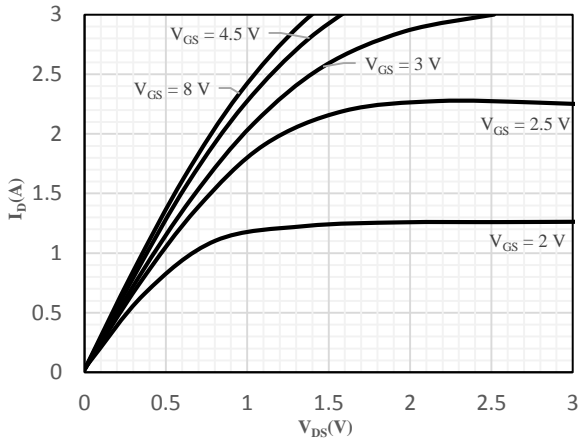


Fig 1 Output Characteristics

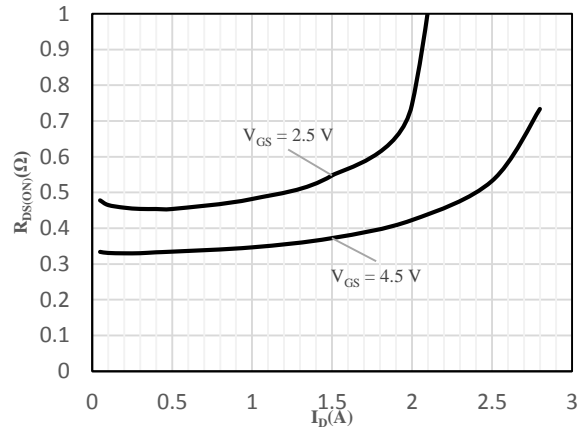


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

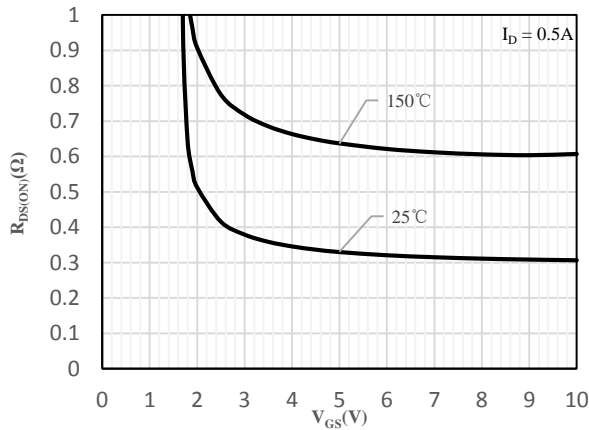


Fig 3 On-Resistance vs. Gate-Source Voltage

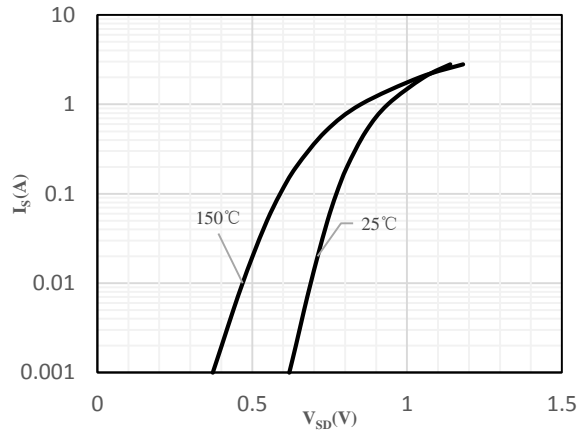


Fig 4 Body-Diode Characteristics

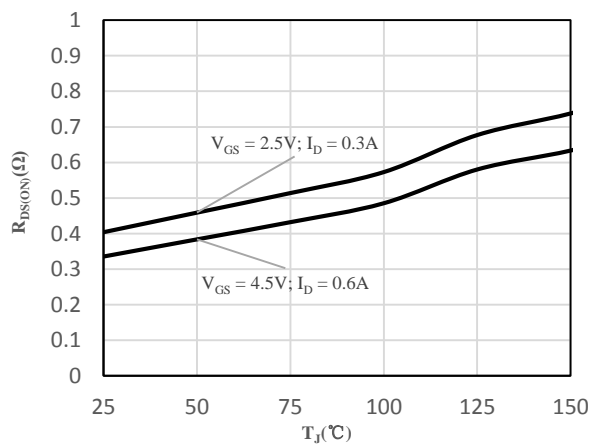


Fig 5 On-Resistance vs. Junction Temperature

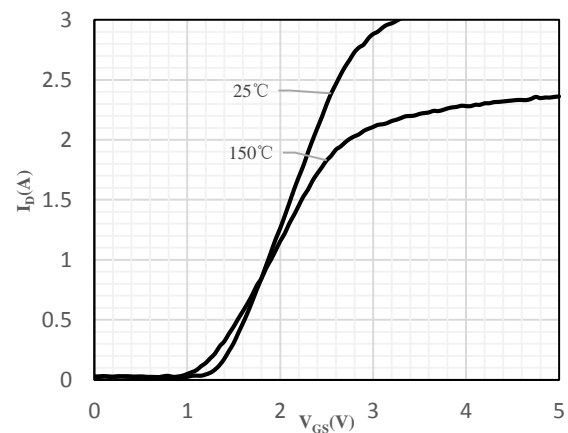


Fig 6 Transfer Characteristics

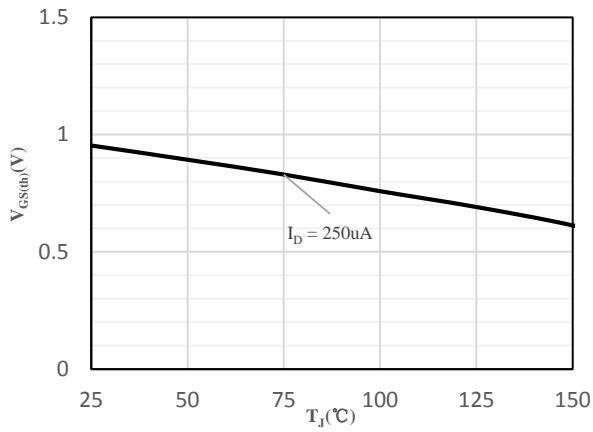


Fig 7 Gate Voltage vs. Junction Temperature

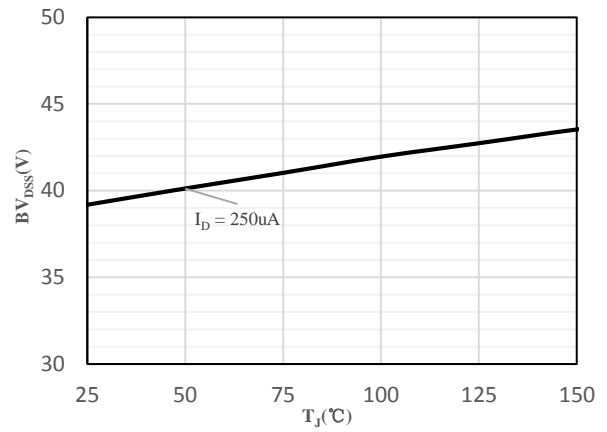


Fig 8 Drain-Source vs. Junction Temperature

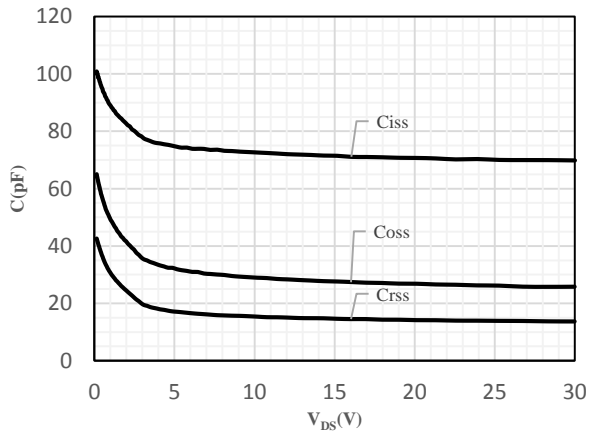


Fig 9 Capacitance Characteristics

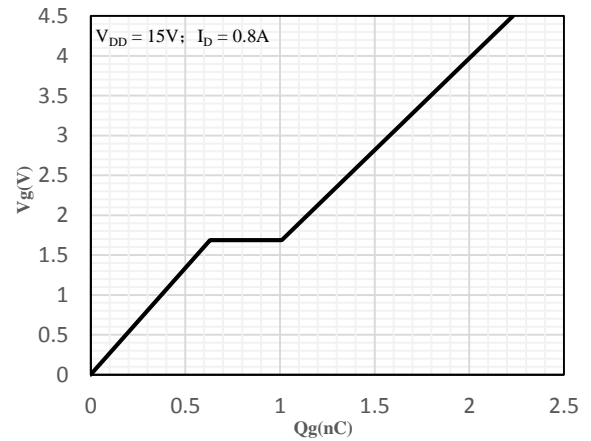
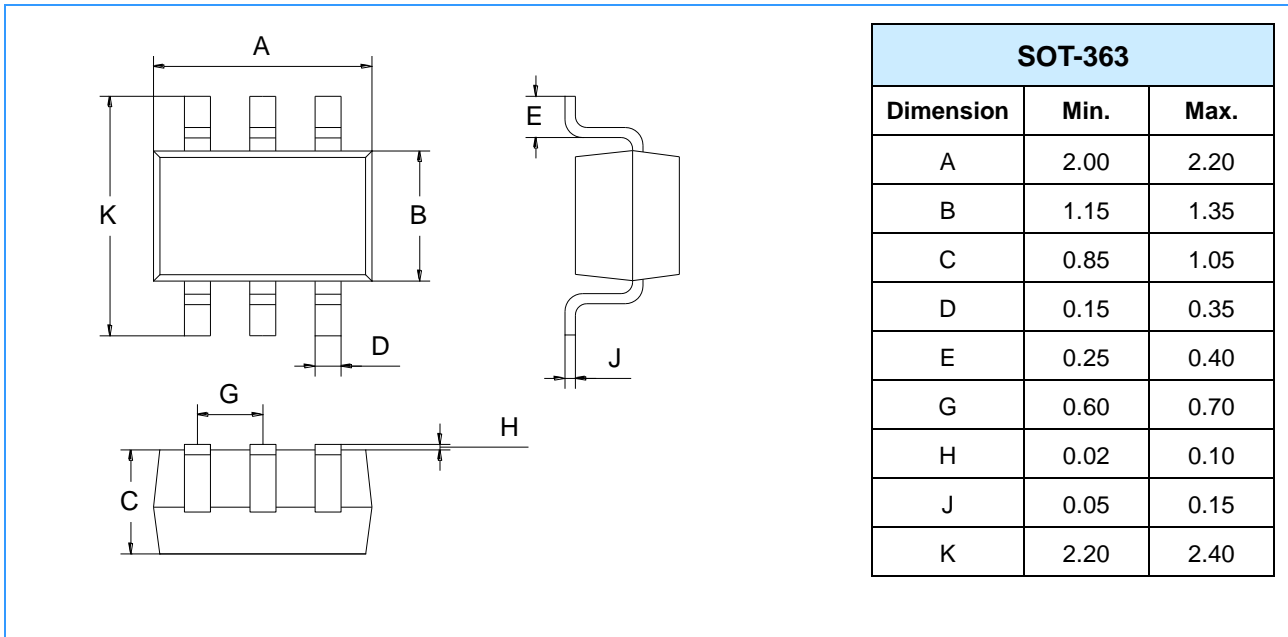
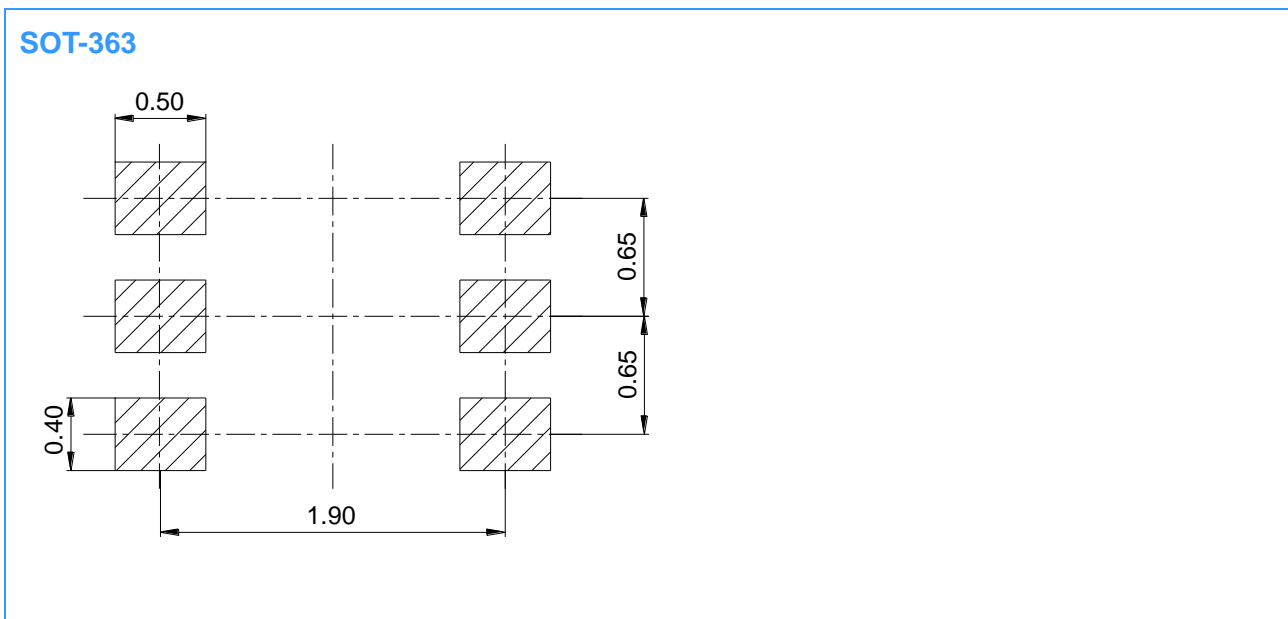


Fig 10 Gate-Charge Characteristics

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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