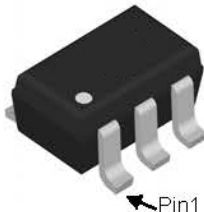
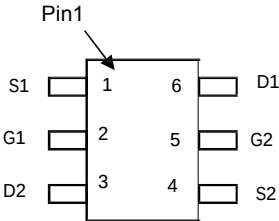
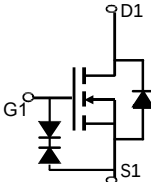
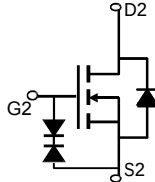


HM2302BWKR

Dual N-Channel Enhancement Mode Field Effect Transistor

General Description The HM2302BWKR uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 1.8V, in the small SOT363 footprint. It can be used for a wide variety of applications, including load switching, low current inverters and low - current DC DC converters.It is ESD protected.		Features V_{DS} (V) = 20V I_D = 0.9 A (V_{GS} = 4.5V) $R_{DS(ON)}$ < 270mΩ (V_{GS} = 4.5V) $R_{DS(ON)}$ < 330mΩ (V_{GS} = 2.5V) $R_{DS(ON)}$ < 450mΩ (V_{GS} = 1.8V) 			
SC70-6L (SOT-363) Top View  Bottom View  Pin1   					
Absolute Maximum Ratings $T_A=25^{\circ}C$ unless otherwise noted					
Parameter		Symbol	Maximum	Units	
Drain-Source Voltage		V_{DS}	20	V	
Gate-Source Voltage		V_{GS}	± 8	V	
Continuous Drain Current ^A	$T_A=25^{\circ}C$	I_D	0.9	A	
	$T_A=70^{\circ}C$		0.7		
Pulsed Drain Current ^B		I_{DM}	5		
Power Dissipation ^A	$T_A=25^{\circ}C$	P_D	0.9	W	
	$T_A=70^{\circ}C$		0.6		
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}C$	
Thermal Characteristics					
Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^A	$t \leq 10s$	R_{JA}	120	145	$^{\circ}C/W$
Maximum Junction-to-Ambient ^A	Steady-State		156	190	$^{\circ}C/W$
Maximum Junction-to-Lead ^C	Steady-State	R_{JL}	130	150	$^{\circ}C/W$

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =250 A, V _{GS} =0V	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V, V _{GS} =0V T _J =55°C			1 5	μ A
I _{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} =±8V			25	μ A
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} I _D =250 A	0.45		1.2	V
I _{D(ON)}	On state drain current	V _{GS} =4.5V, V _{DS} =5V	5			A
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =4.5V, I _D =0.9A T _J =125°C		220	270	mΩ
		V _{GS} =2.5V, I _D =0.75A		260	330	mΩ
		V _{GS} =1.8V, I _D =0.7A		330	450	mΩ
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =0.8A		2.6		S
V _{SD}	Diode Forward Voltage	I _S =0.5A, V _{GS} =0V		0.69	1	V
I _S	Maximum Body-Diode Continuous Current				0.4	A
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, f=1MHz		101	120	pF
C _{oss}	Output Capacitance			17		pF
C _{rss}	Reverse Transfer Capacitance			14		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz		3	4	
SWITCHING PARAMETERS						
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =10V, I _D =0.8A		1.57	1.9	nC
Q _{gs}	Gate Source Charge			0.13		nC
Q _{gd}	Gate Drain Charge			0.36		nC
t _{D(on)}	Turn-On DelayTime	V _{GS} =5V, V _{DS} =10V, R _L =12.5 Ω, R _{GEN} =6		3.2		ns
t _r	Turn-On Rise Time			4		ns
t _{D(off)}	Turn-Off DelayTime			15.5		ns
t _f	Turn-Off Fall Time			2.4		ns
t _{rr}	Body Diode Reverse Recovery Time	I _F =0.8A, dI/dt=100A/ s		6.7	8.1	ns
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =0.8A, dI/dt=100A/ s		1.6		nC

A: The value of R_{JA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

C: The R_{JA} is the sum of the thermal impedance from junction to lead R_{JL} and lead to ambient.

D: The static characteristics in Figures 1 to 6,12,14 are obtained using 80 μs pulses, duty cycle 0.5% max.

E: These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The SOA curve provides a single pulse rating.

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TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

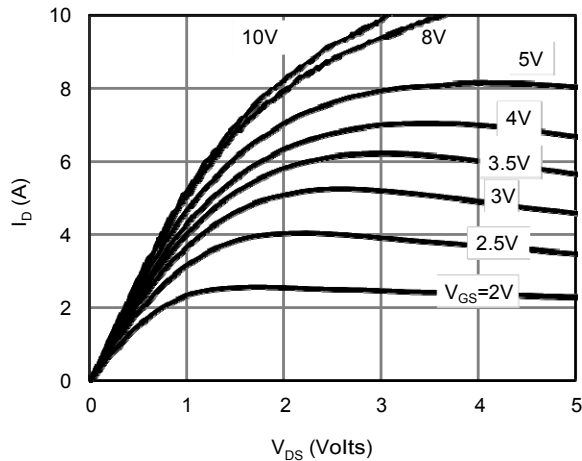


Fig 1: On-Region Characteristics

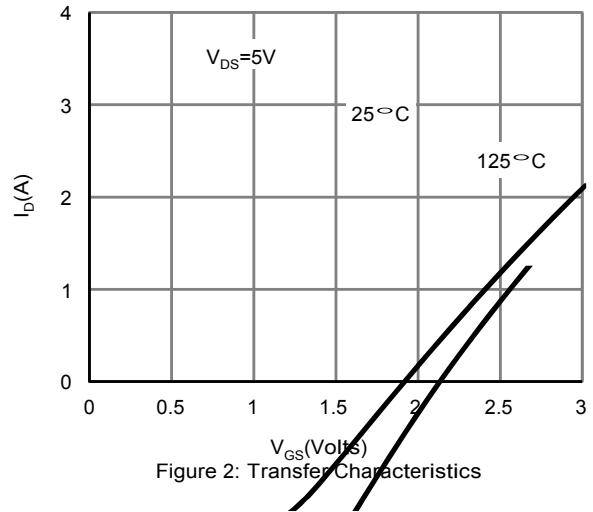


Figure 2: Transfer Characteristics

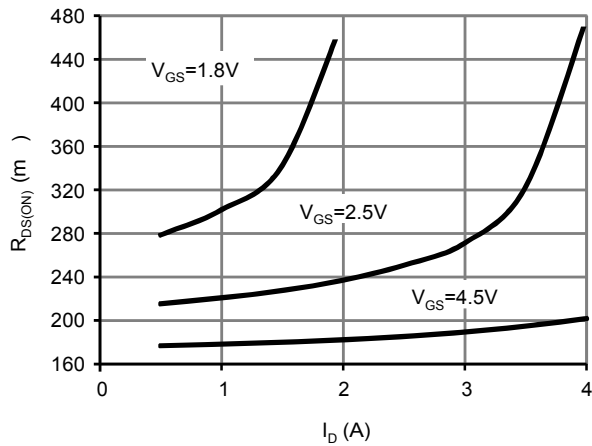


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

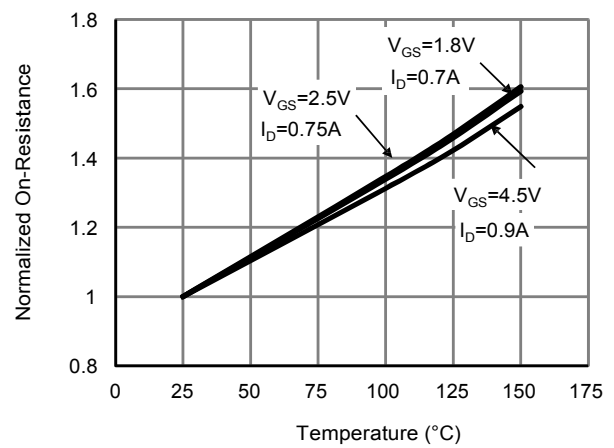


Figure 4: On-Resistance vs. Junction Temperature

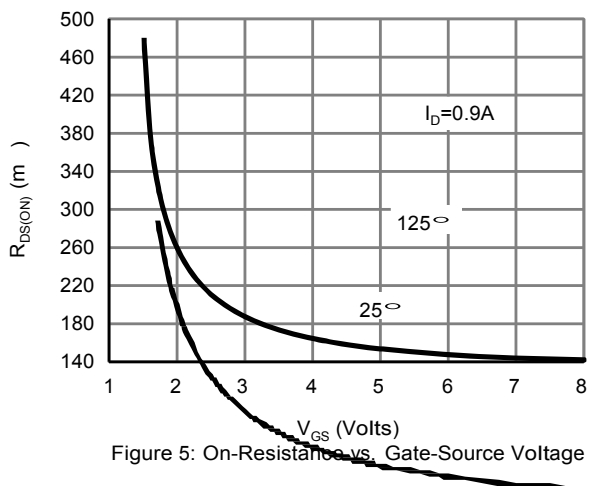


Figure 5: On-Resistance vs. Gate-Source Voltage

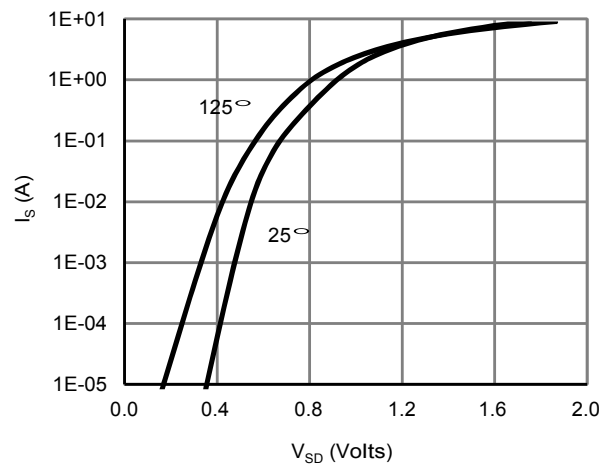
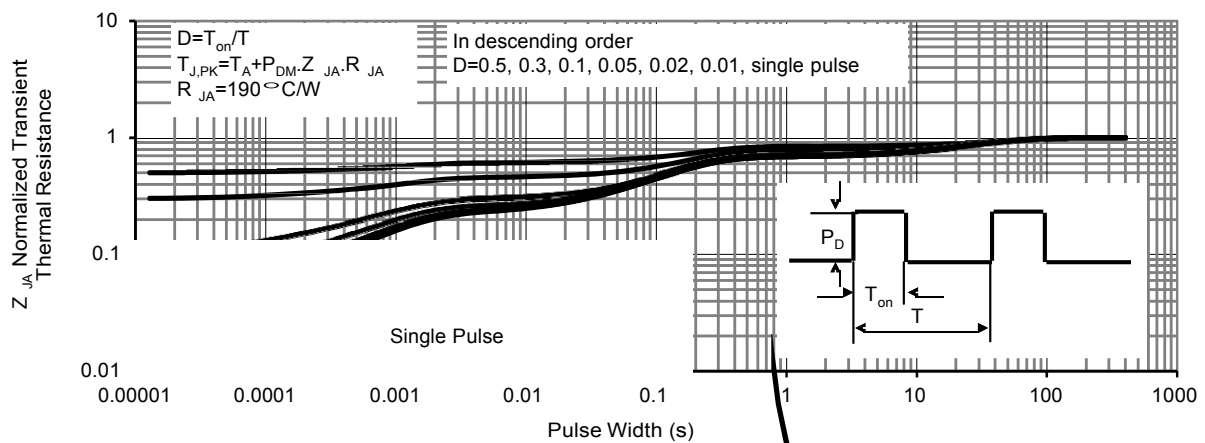
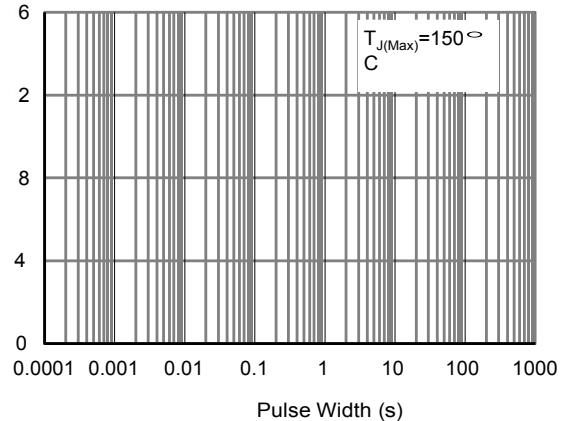
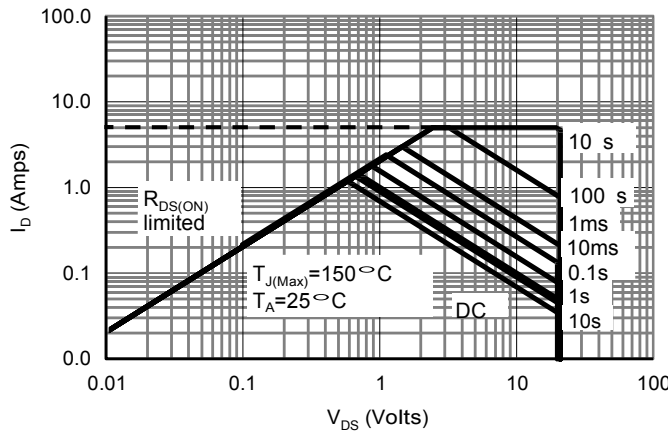
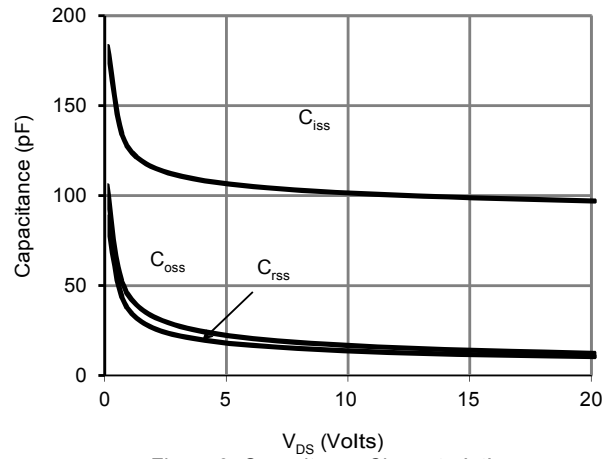
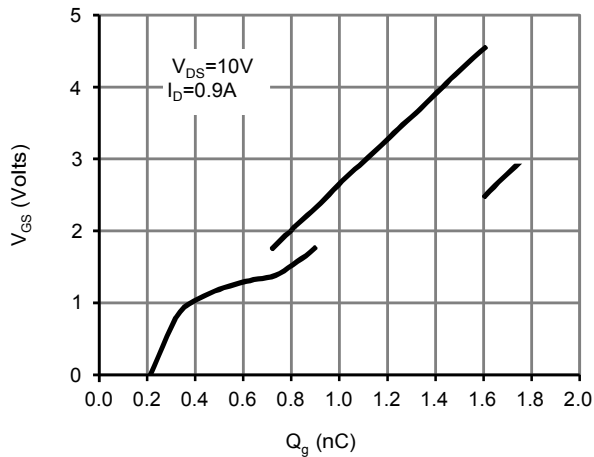
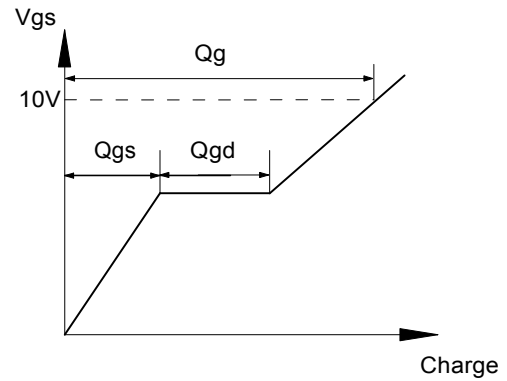
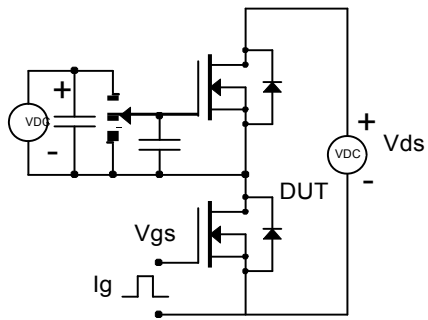


Figure 6: Body-Diode Characteristics

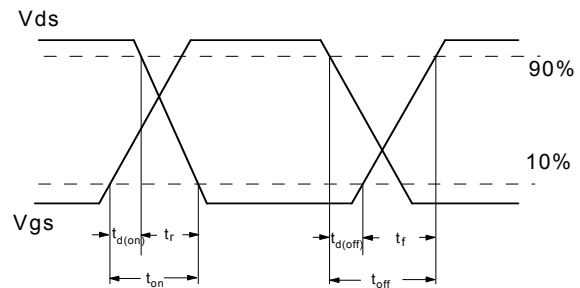
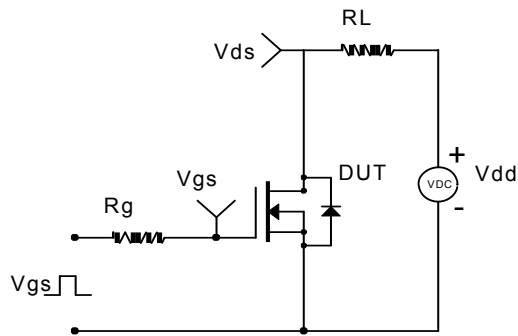
TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



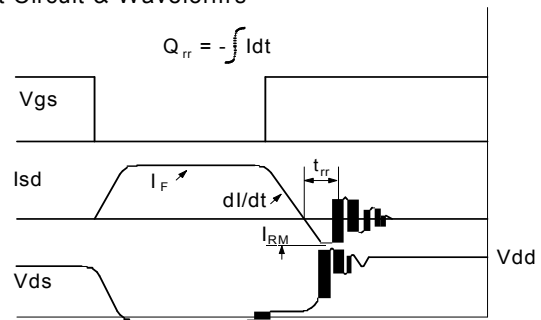
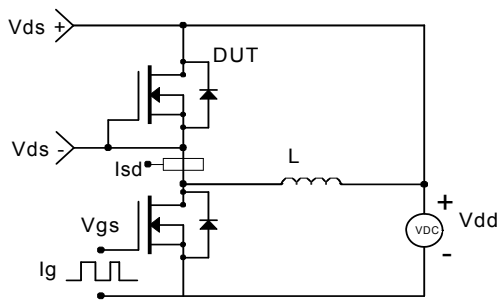
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



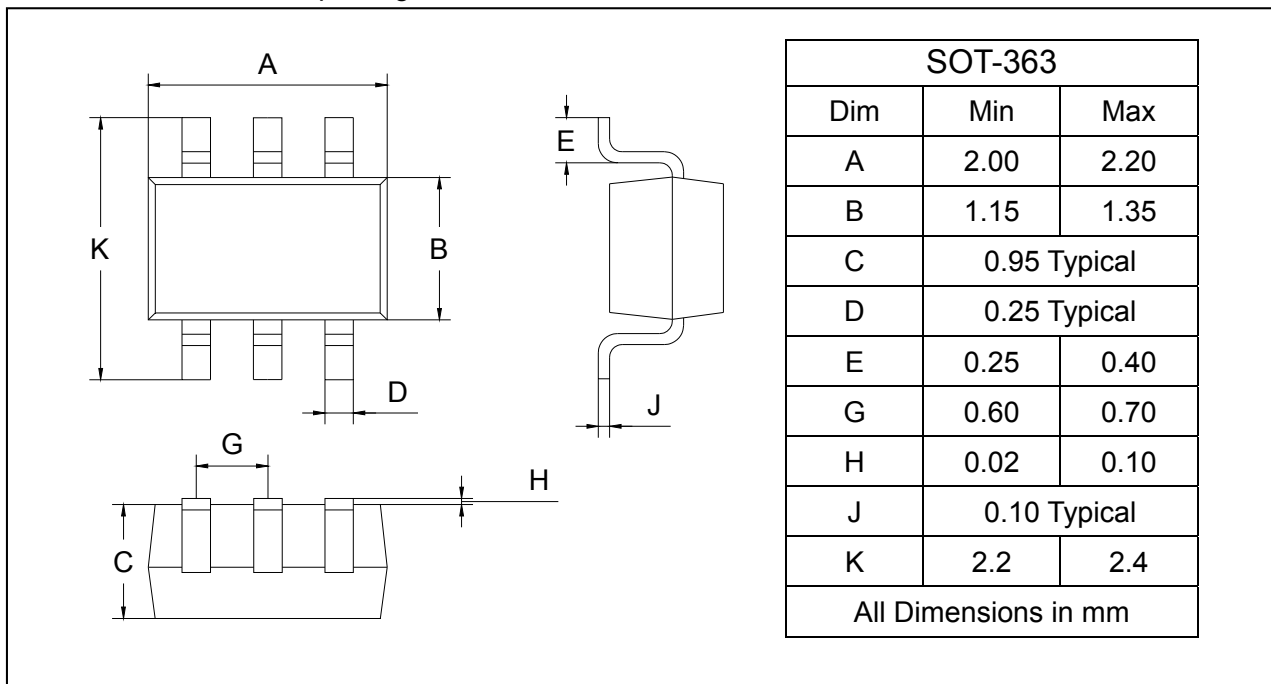
Diode Recovery Test Circuit & Waveforms



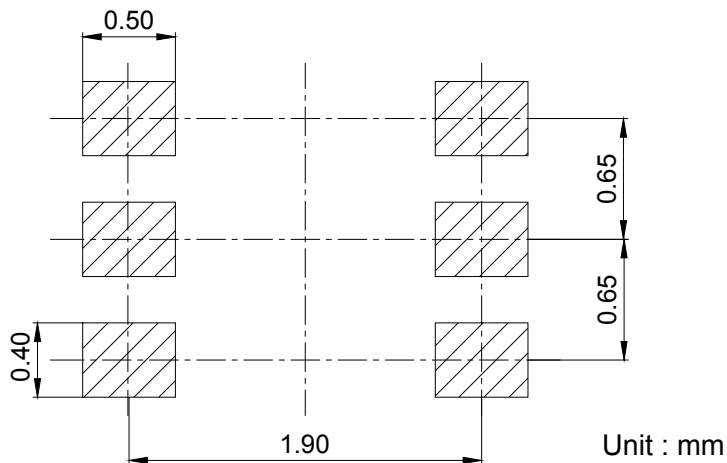
PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
HM2302BWKR	SOT-363	3000/Tape&Reel