ESD protected Dual N-CHANNEL MOSFET

Description:

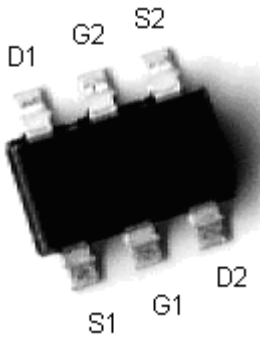
- Low voltage drive(2.5V drive) makes this device ideal for portable equipment.

The MOSFET elements are independent, eliminating mutual interference.

- Mounting cost and area can be cut in half.
- High speed switching
- ESD protected device
- Pb-free lead plating & halogen-free package

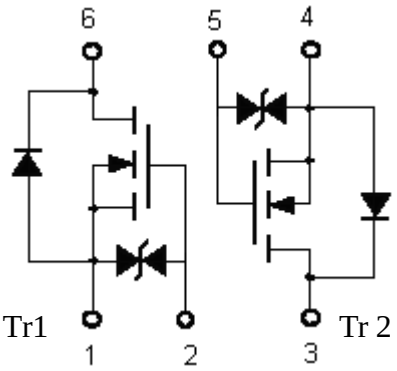
Outline

SOT-363



BV_{DSS}		30V
I_D@V_{GS}=4V, T_A=25°C		250mA
$R_{DSON(TYP)}$	V_{GS}=4V, I_D=10mA	1.3Ω
	V_{GS}=2.5V, I_D=1mA	2.7Ω

Symbol



Ordering Information

Device	Package	Shipping
KWDK5S6R	SOT-363 (Pb-free lead plating & halogen-free package)	3000 pcs / Tape & Reel

The following characteristics apply to both Tr1 and Tr2

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	BV_{DSS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	±250	mA
Pulsed Drain Current (Ta=25°C)	I_{DM}	±800 *1	mA
Total Power Dissipation	P_D	200 *2	mW
ESD susceptibility		1550 *3	V
Operating Junction and Storage Temperature Range	Tj ; Tstg	-55~+150	°C
Thermal Resistance, Junction-to-Ambient	Rth,ja	625	°C/W

Note : *1. Pulse Width ≤ 10μs, Duty cycle ≤1%
*2. With each pin mounted on the recommended lands.
*3. Human body model, 1.5kΩ in series with 100pF

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Channel-to-ambient, max	*$R_{th,ch-a}$	625 (total)	°C/W

Note : With each pin mounted on the recommended lands.

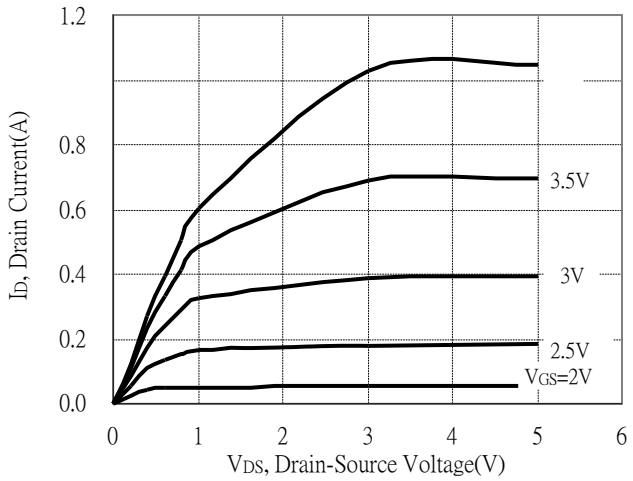
Electrical Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	30	-	-	V	V_{GS}=0V, I_D=100μA
$V_{GS(th)}$	0.8	1.2	1.5		V_{DS}=3V, I_D=100μA
I_{GSS}	-	-	±5	μA	V_{GS}=±20V, V_{DS}=0V
I_{DSS}	-	-	100	nA	V_{DS}=30V, V_{GS}=0V
$R_{DS(ON)}$	-	1.3	3	Ω	V_{GS}=4V, I_D=10mA
	-	2.7	5		V_{GS}=2.5V, I_D=1mA
G_{FS}	20	70	-	mS	V_{DS}=3V, I_D=10mA
Dynamic					
C_{iss}	-	31.5	-	pF	V_{DS}=5V, V_{GS}=0V, f=1MHz
C_{oss}	-	7.3	-		
C_{rss}	-	5.5	-		
$t_{d(on)}$	-	11	-	ns	V_{DD}≒5V, I_D=10mA, V_{GS}=5V, R_L=500Ω , R_G=10Ω
t_r	-	6	-		
$t_{d(off)}$	-	42	-		
t_f	-	16	-		
Qg	-	0.66	-	nC	I_D=10mA, V_{DS}=15V, V_{GS}=4V
Qgs	-	0.05	-		
Qgd	-	0.25	-		
Source-Drain Diode					
*V_{SD}	-	0.8	1.2	V	V_{GS}=0V, I_S=100mA

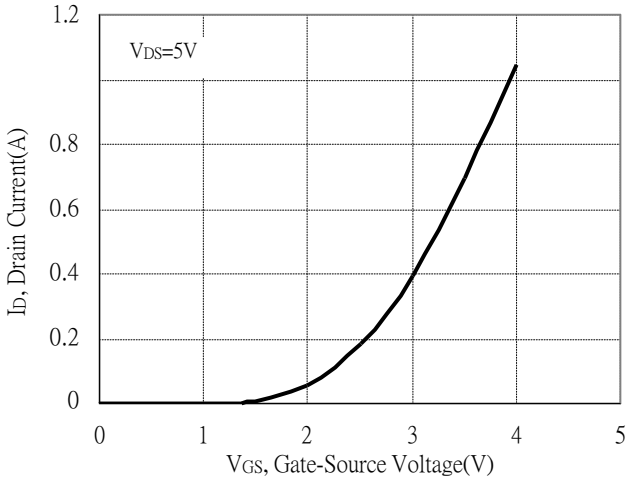
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

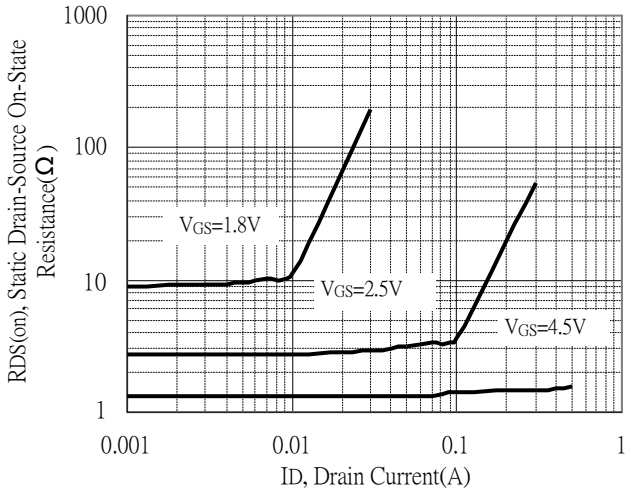
Typical Output Characteristics



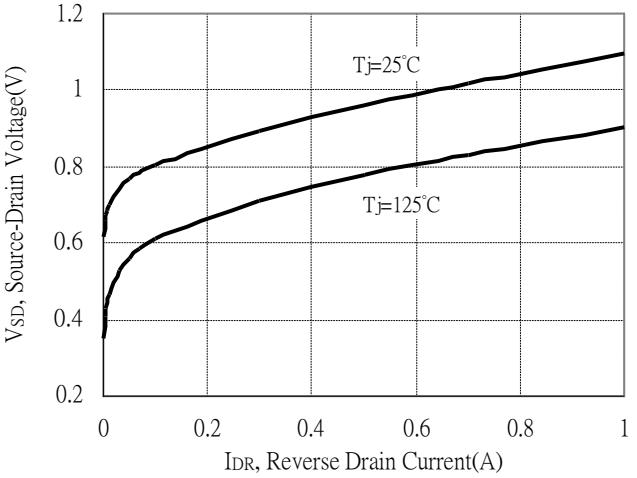
Typical Transfer Characteristics



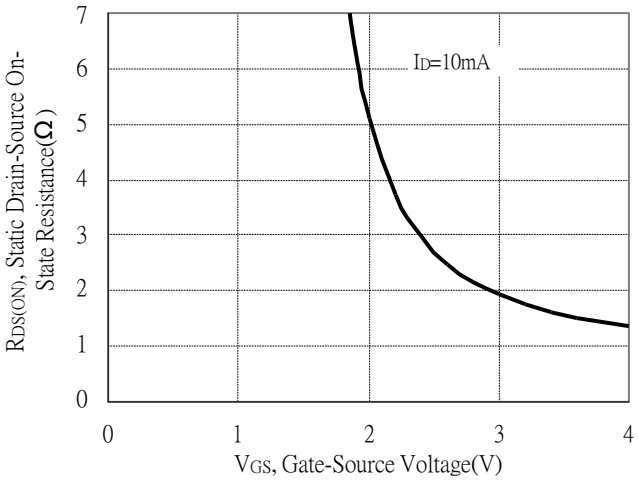
Static Drain-Source On-State resistance vs Drain Current



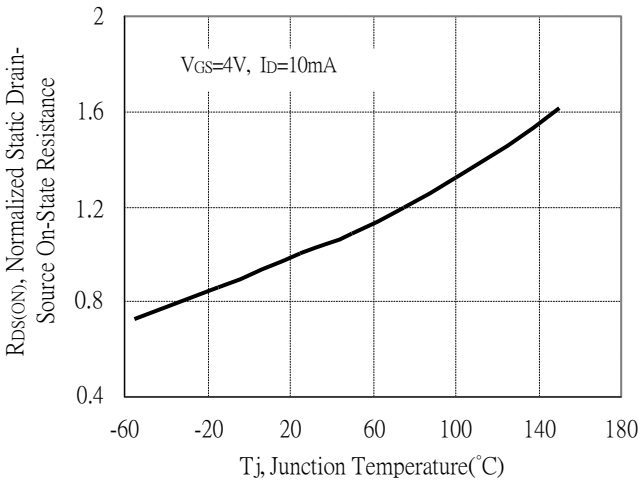
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

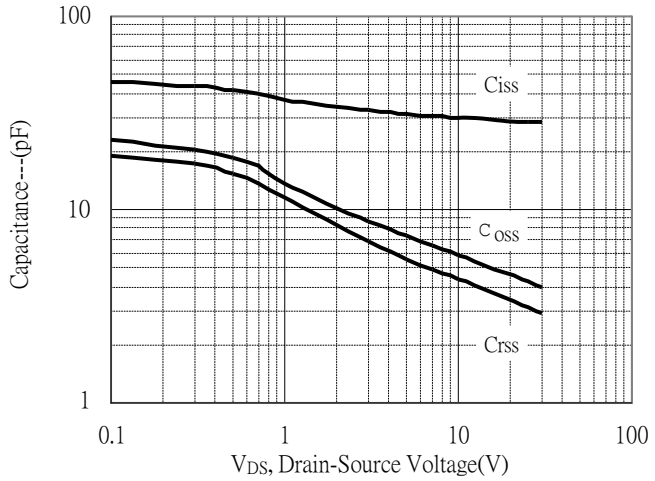


Drain-Source On-State Resistance vs Junction Tempearture

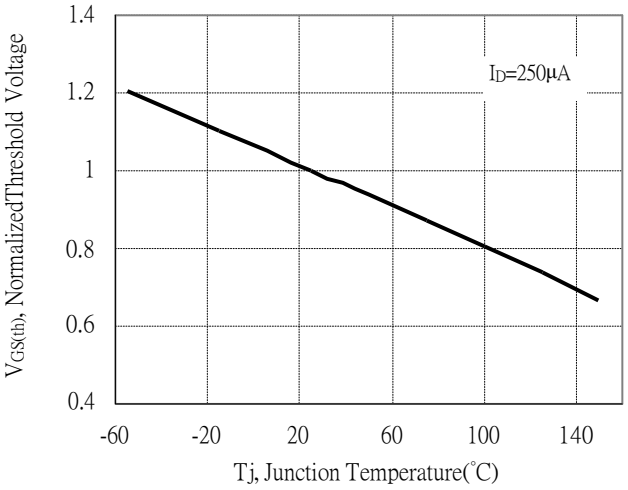


Typical Characteristics(Cont.)

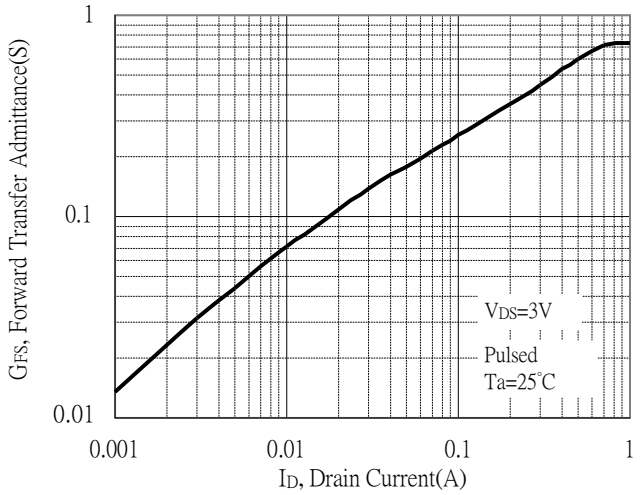
Capacitance vs Drain-to-Source Voltage



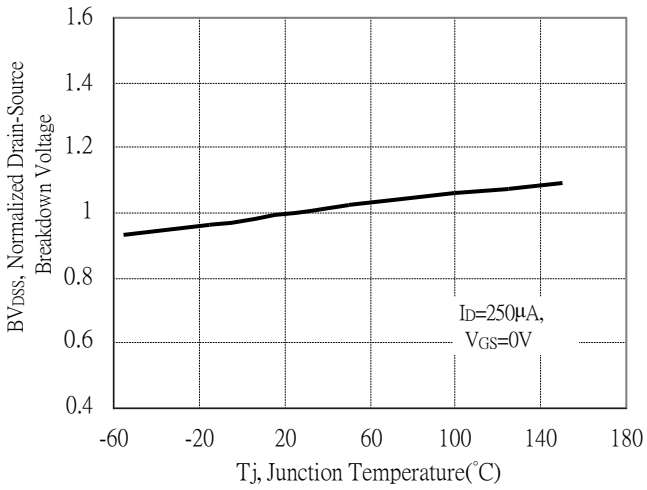
Threshold Voltage vs Junction Tempearture



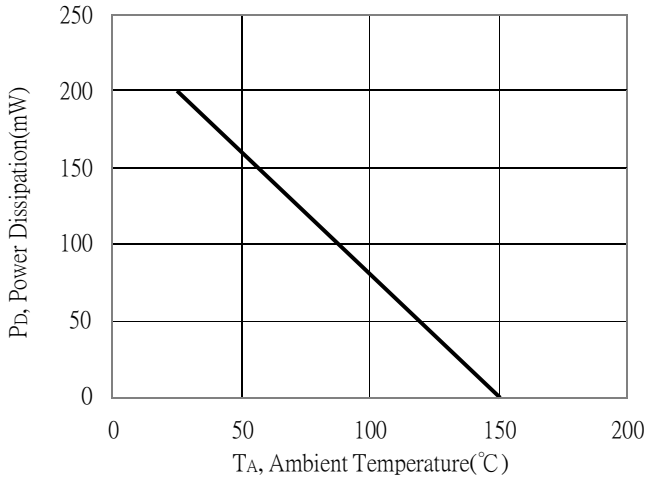
Forward Transfer Admittance vs Drain Current



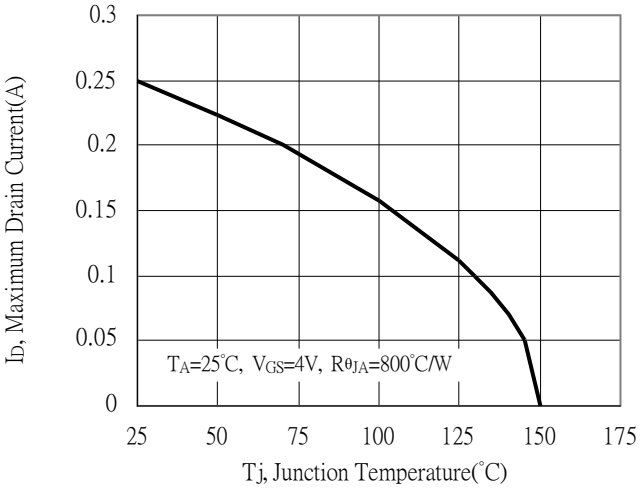
Brekdown Voltage vs Ambient Temperature



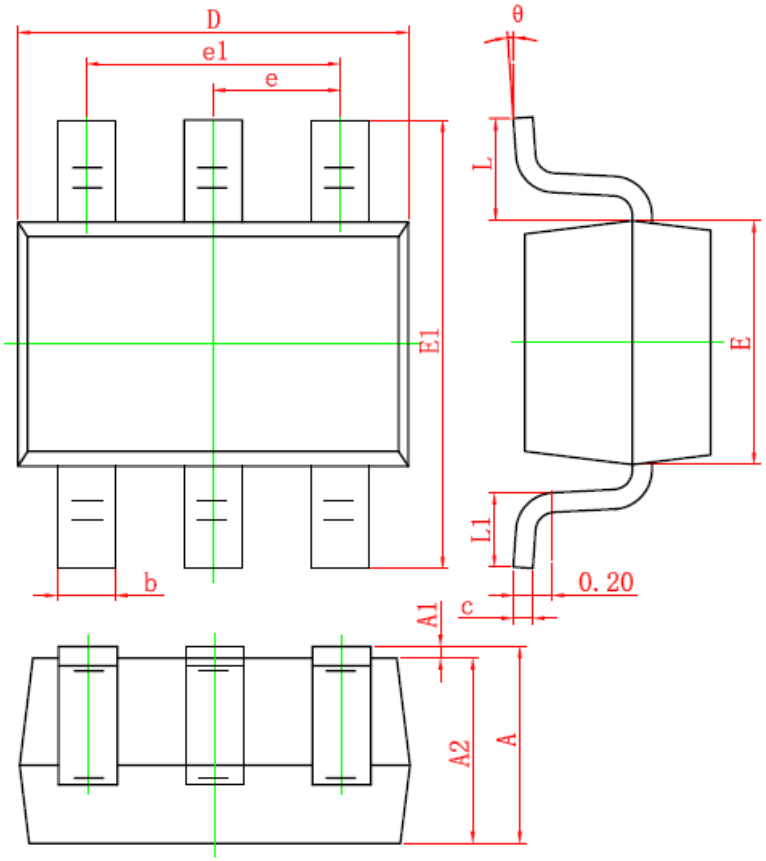
Power Derating Curve



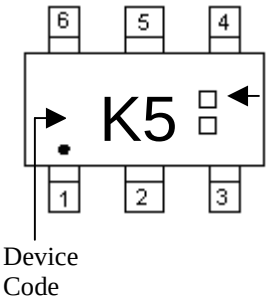
Maximum Drain Current vs Junction Temperature



SOT-363 Dimension



Marking:



Date Code:
Year + Month
Year : 6→2006, 7→2007,…, etc
Month : 1→Jan 2→Feb, …, 9→Sep, A→Oct, B →Nov, C→Dec

6-Lead SOT-363R Plastic Surface Mounted Package
Code: S6R

Style:
Pin 1. Source1 (S1)
Pin 2. Gate1 (G1)
Pin 3. Drain2 (D2)
Pin 4. Source2 (S2)
Pin 5. Gate2 (G2)
Pin 6. Drain1 (D1)

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	E1	2.150	2.450	0.085	0.096
A1	0.000	0.100	0.000	0.004	e	0.650 TYP		0.026 TYP	
A2	0.900	1.000	0.035	0.039	e1	1.200	1.400	0.047	0.055
b	0.150	0.350	0.006	0.014	L	0.525 REF		0.021 REF	
c	0.080	0.150	0.003	0.006	L1	0.260	0.460	0.010	0.018
D	2.000	2.200	0.079	0.087	θ	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					