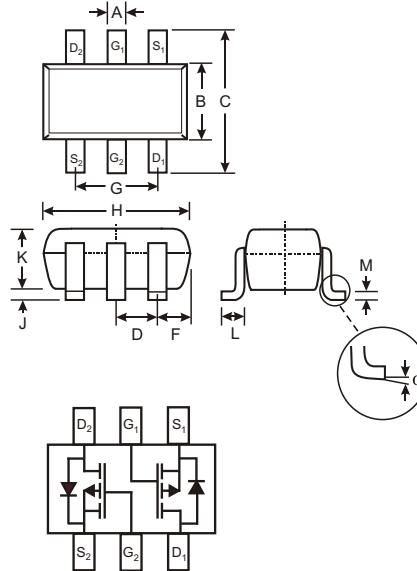


### Features

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Lead Free/RoHS Compliant (Note 3)**

### Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Code (See Page 2): K84
- Ordering & Date Code Information: See Page 2
- Weight: 0.006 grams (approx.)



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J		0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
	0°	8°
All Dimensions in mm		

### Maximum Ratings @ T<sub>A</sub> = 25 C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V <sub>DSS</sub>	-50	V
Drain-Gate Voltage (Note 1)	V <sub>DGR</sub>	-50	V
Gate-Source Voltage	V <sub>GS</sub>	20	V
Drain Current (Note 2)	I <sub>D</sub>	-130	mA
Total Power Dissipation (Note 2)	P <sub>d</sub>	300	mW
Thermal Resistance, Junction to Ambient	R <sub>JA</sub>	417	C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	C

- Note: 1. R<sub>GS</sub> 20K .  
 2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.  
 3. No purposefully added lead.

## Electrical Characteristics @ T<sub>A</sub> = 25 C unless otherwise specified

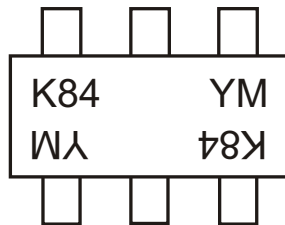
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 4)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-50	-75		V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250 A
Zero Gate Voltage Drain Current	I <sub>DSS</sub>			-15 -60 -100	μA μA nA	V <sub>DS</sub> = -50V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 25 C V <sub>DS</sub> = -50V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 C V <sub>DS</sub> = -25V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 25 C
Gate-Body Leakage	I <sub>GSS</sub>			10	nA	V <sub>GS</sub> = 20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 4)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	-0.8	-1.6	-2.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -1mA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>		6	10		V <sub>GS</sub> = -5V, I <sub>D</sub> = -0.100A
Forward Transconductance	g <sub>FS</sub>	0.05			S	V <sub>DS</sub> = -25V, I <sub>D</sub> = -0.1A
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>iss</sub>			45	pF	V <sub>DS</sub> = -25V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>			25	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>			12	pF	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	t <sub>D(ON)</sub>		10		ns	V <sub>DD</sub> = -30V, I <sub>D</sub> = -0.27A, R <sub>GEN</sub> = 50 Ω, V <sub>GS</sub> = -10V
Turn-Off Delay Time	t <sub>D(OFF)</sub>		18		ns	

## Ordering Information (Note 5)

Device	Packaging	Shipping
BSS84DW-7-F	SOT-363	3000/Tape & Reel

- Notes: 4. Short duration test pulse used to minimize self-heating effect.  
5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

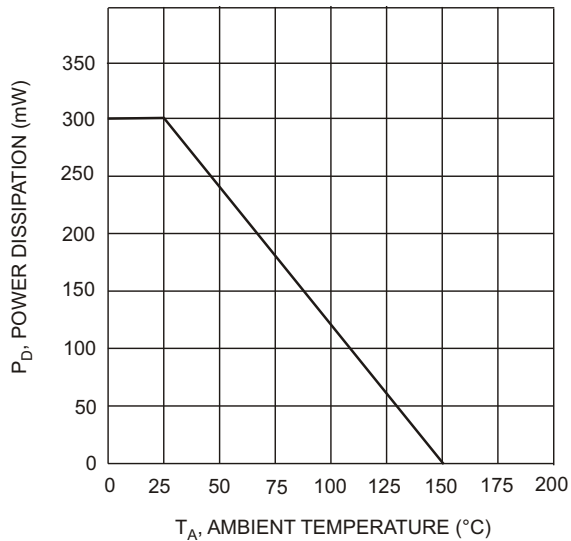
## Marking Information



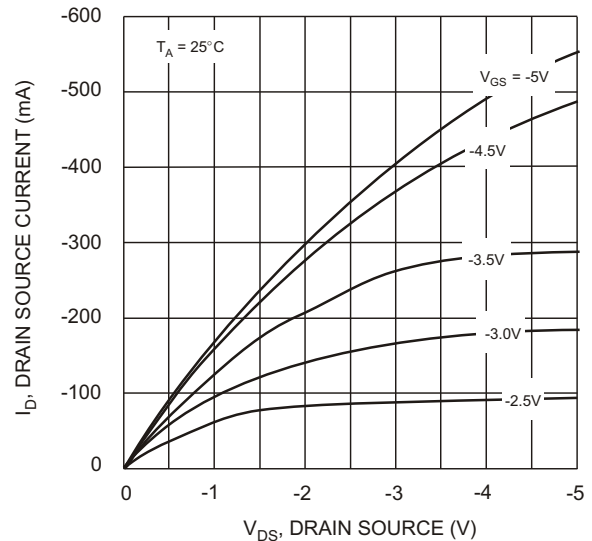
K84 = Product Type Marking Code  
YM = Date Code Marking  
Y = Year ex: N = 2002  
M = Month ex: 9 = September

### Date Code Key

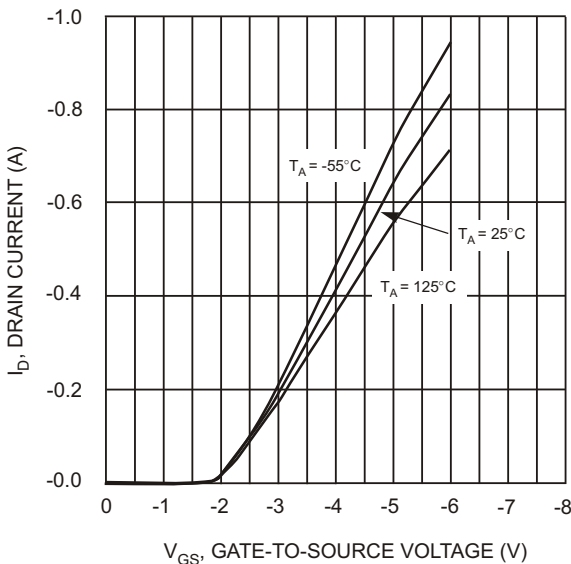
<b>Year</b>	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Code</b>	J	K	L	M	N	P	R	S	T	U	V	W
<b>Month</b>	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Code</b>	1	2	3	4	5	6	7	8	9	O	N	D



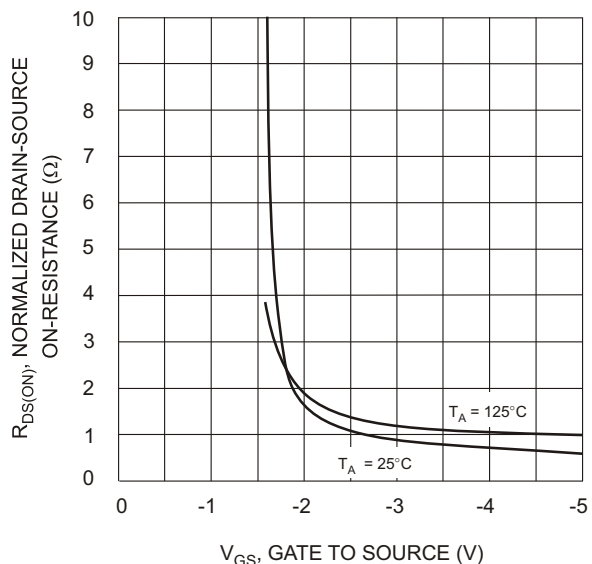
$T_A$ , AMBIENT TEMPERATURE (°C)  
Fig. 1, Max Power Dissipation vs Ambient Temperature



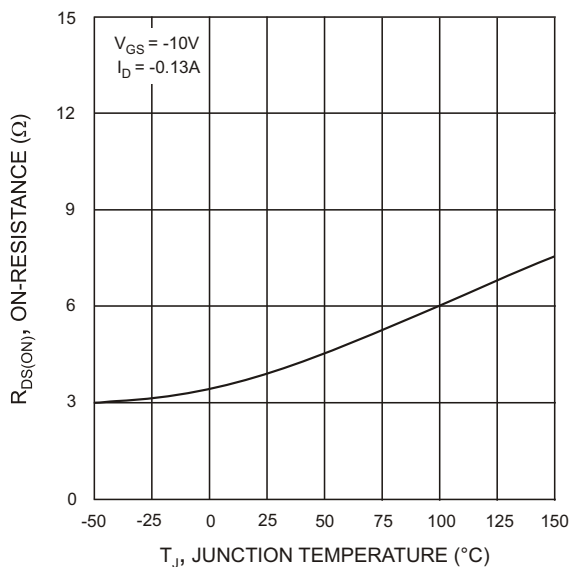
$T_A = 25^\circ\text{C}$   
 $V_{GS}$ , DRAIN SOURCE (V)  
Fig. 2, Drain Source Current vs. Drain Source Voltage



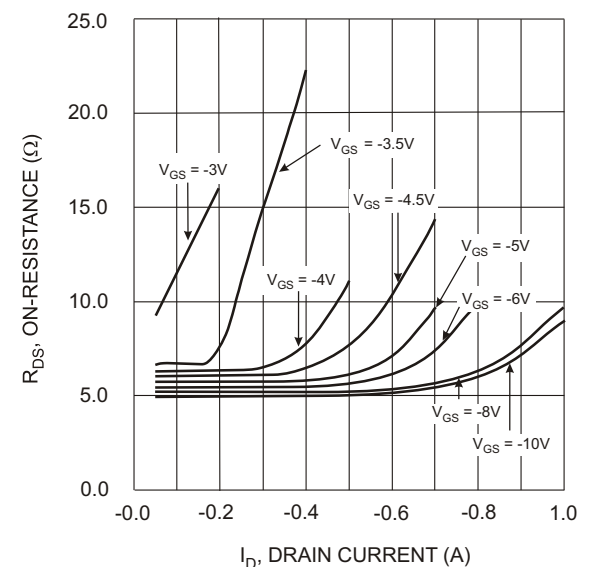
$V_{GS}$ , GATE-TO-SOURCE VOLTAGE (V)  
Fig. 3, Drain Current vs. Gate Source Voltage



$V_{GS}$ , GATE TO SOURCE (V)  
Fig. 4, On Resistance vs. Gate Source Voltage



$T_J$ , JUNCTION TEMPERATURE (°C)  
Fig. 5, On-Resistance vs. Junction Temperature



$I_D$ , DRAIN CURRENT (A)  
Fig. 6, On-Resistance vs. Drain Current

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