

BSS84K-TP Datasheet

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DiGi Electronics Part Number	BSS84K-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	BSS84K-TP
Description	MOSFET P-CH 60V 130MA SOT23
Detailed Description	P-Channel 60 V 130mA (Ta) 225mW Surface Mount SOT-23

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Purchase and inquiry

Manufacturer Product Number:

BSS84K-TP

Series:

-

FET Type:

P-Channel

Drain to Source Voltage (Vdss):

60 V

Drive Voltage (Max Rds On, Min Rds On):

4.5V, 10V

Vgs(th) (Max) @ Id:

2.5V @ 250µA

Input Capacitance (Ciss) (Max) @ Vds:

30 pF @ 5 V

Power Dissipation (Max):

225mW

Mounting Type:

Surface Mount

Package / Case:

TO-236-3, SC-59, SOT-23-3

Manufacturer:

Micro Commercial Co

Product Status:

Active

Technology:

MOSFET (Metal Oxide)

Current - Continuous Drain (Id) @ 25°C:

130mA (Ta)

Rds On (Max) @ Id, Vgs:

60hm @ 500mA, 10V

Vgs (Max):

±20V

FET Feature:

-

Operating Temperature:

-55°C ~ 150°C (TJ)

Supplier Device Package:

SOT-23

Base Product Number:

BSS84

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0095

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Features

- ESD Protected up to 2KV (HBM)
- High Speed Switching
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 130°C/W Junction to Ambient (Note 2)

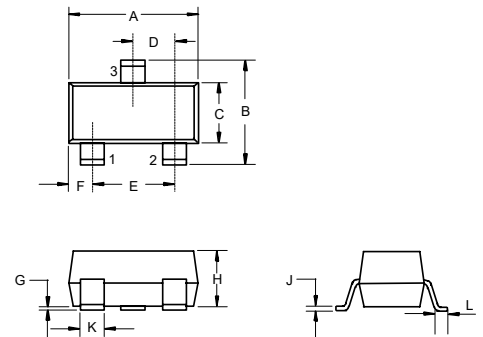
Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	-60	V
Gate -Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	$T_A=25^\circ C$	-0.13
		$T_A=100^\circ C$	-0.08
Pulsed Drain Current (Note 3)	I_{DM}	-0.52	A
Power Dissipation (Note 4)	P_D	0.96	W

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ C$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

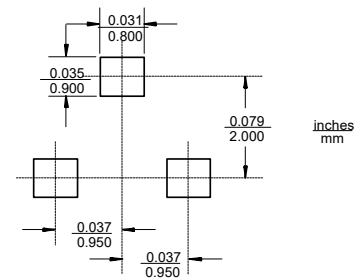
P-Channel MOSFET

SOT-23

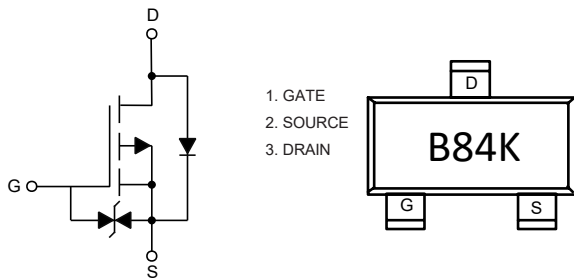


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



Internal Structure and Marking Code



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.8	-1.5	-2.5	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$			-1	μA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-0.5A$		2.2	6	Ω
		$V_{GS}=-4.5V, I_D=-0.2A$		2.5	7	
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-0.13A$		0.37		S
Gate Resistance	R_g	f=1 MHz, Open drain		1038		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-0.13	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-0.5A$			-1.3	V
Reverse Recovery Time	t_{rr}	$I_F=-0.3A, dI_F/dt=100A/\mu s$		13		ns
Reverse Recovery Charge	Q_{rr}				7	
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$		37		pF
Output Capacitance	C_{oss}			5.8		
Reverse Transfer Capacitance	C_{rss}			3.7		
Total Gate Charge	Q_g	$V_{DS}=-30V, V_{GS}=-10V, I_D=-0.3A$		2.55		nC
Gate-Source Charge	Q_{gs}			0.45		
Gate-Drain Charge	Q_{gd}			0.44		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-30V, V_{GS}=-10V, R_G=2.5\Omega, I_D=-0.3A$		4.6		ns
Turn-On Rise Time	t_r			3.7		
Turn-Off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			19		

Curve Characteristics

Fig.1 - Typical Output Characteristics

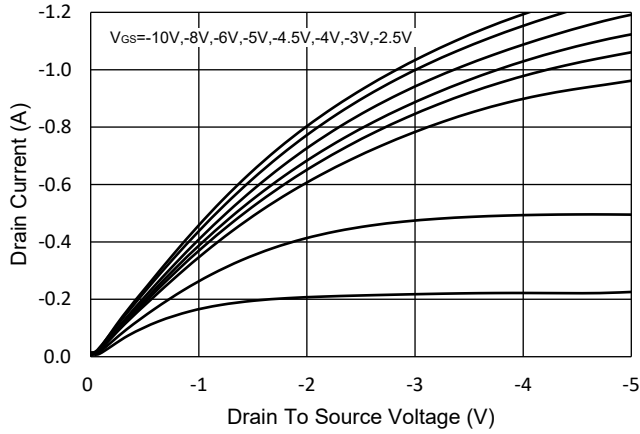


Fig.2 - Transfer Characteristic

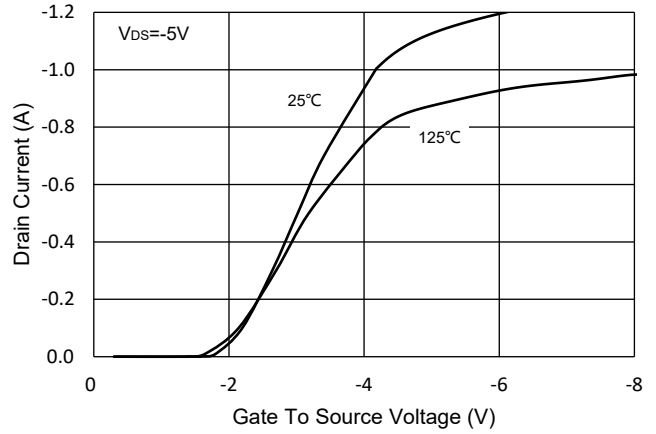


Fig.3 - $R_{DS(ON)}$ - V_{GS}

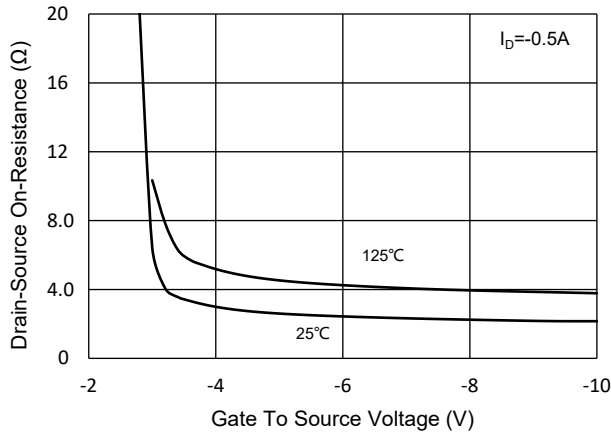


Fig.4 - $R_{DS(ON)}$ - I_D

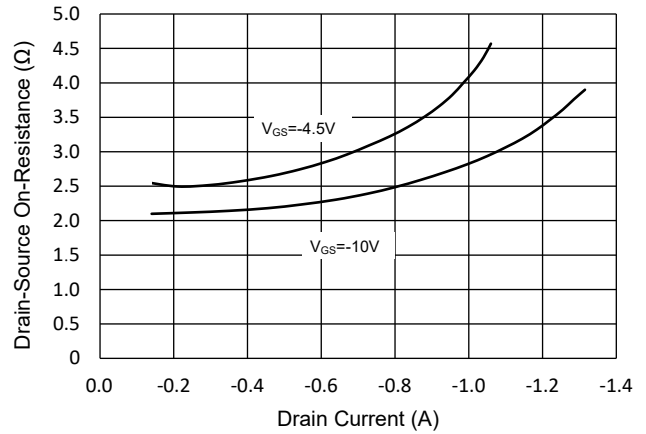


Fig.5 - Capacitance Characteristics

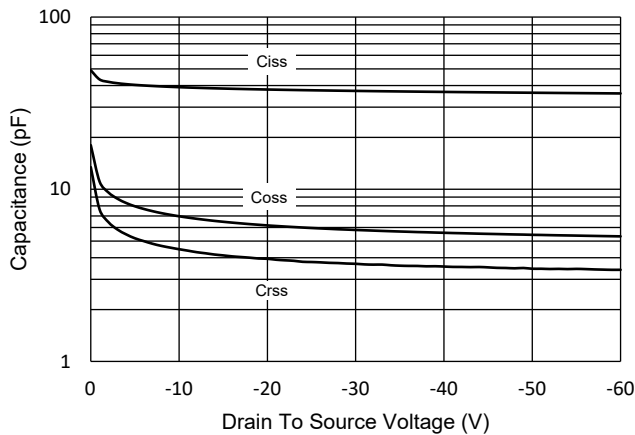
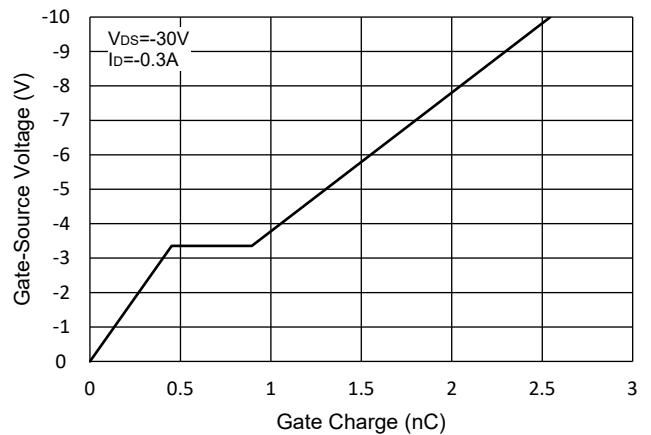


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

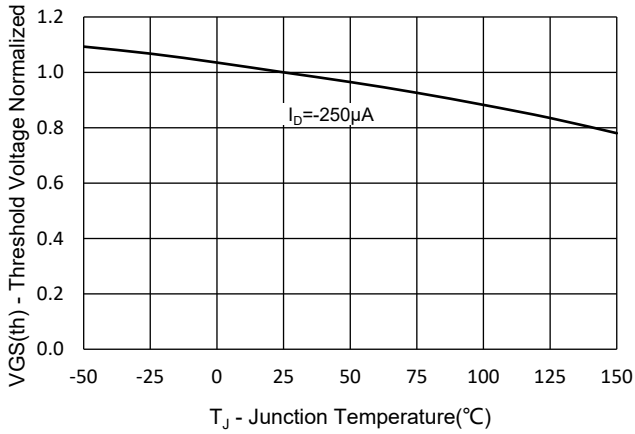


Fig.8 - Normalized On Resistance Characteristics

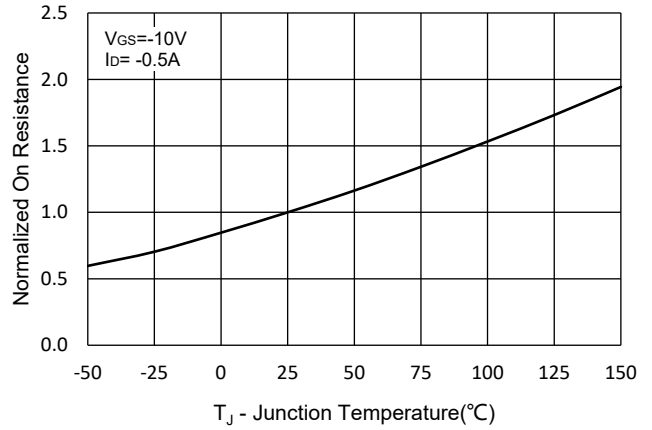


Fig.9 - I_S - V_{SD}

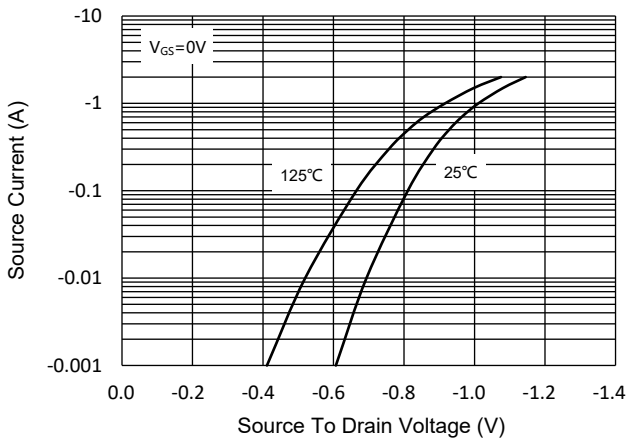


Fig.10 - Drain Current

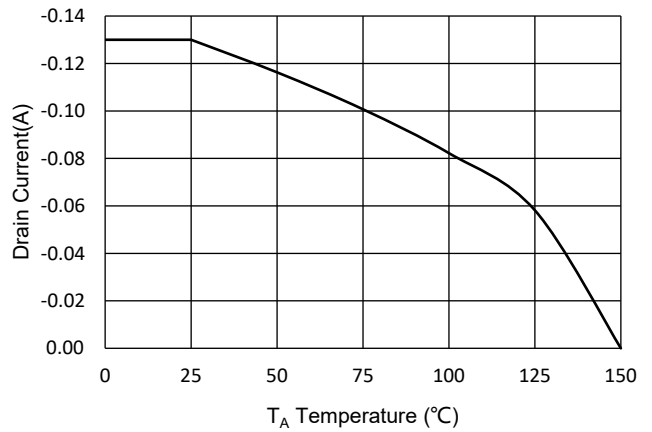
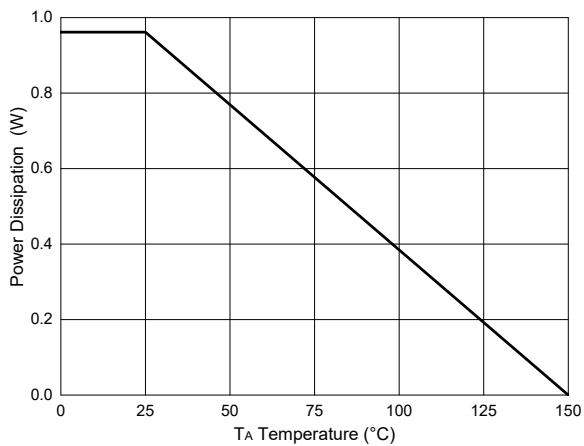


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

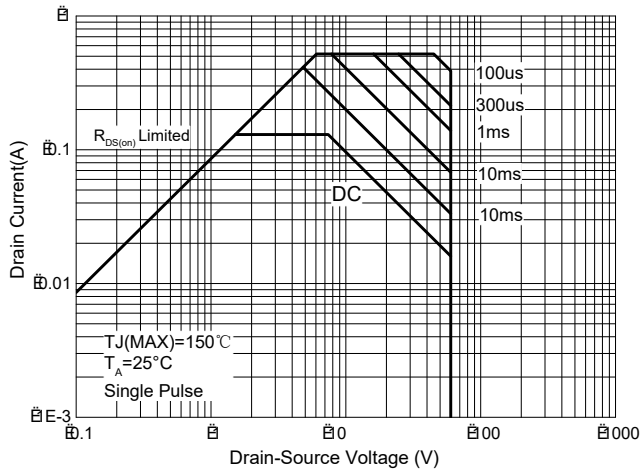
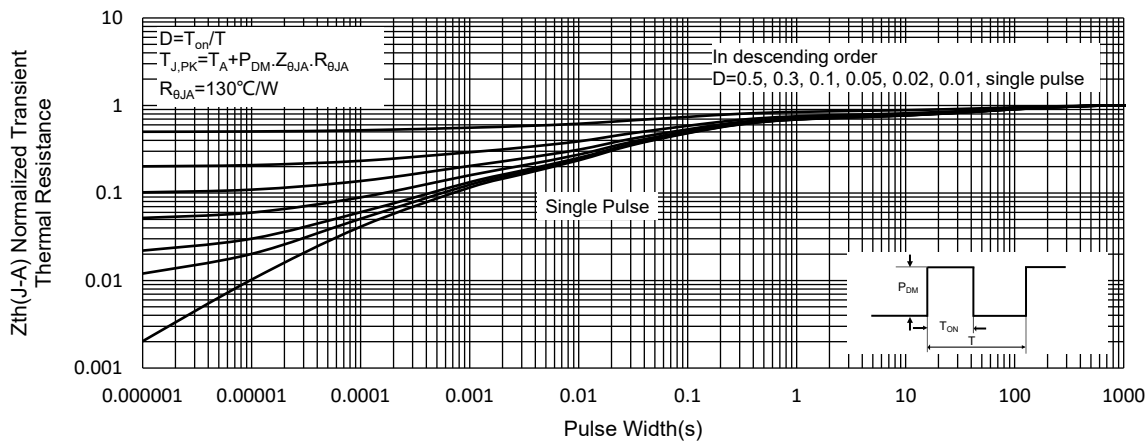


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

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