



SANYO Semiconductors

## DATA SHEET

**MCH5834**

MOSFET : N-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

## General-Purpose Switching Device Applications

### Features

- Composite type with an N-channel silicon MOSFET (MCH3435) and a schottky barrier diode (SS0503SH) contained in one package facilitating high-density mounting.

[MOSFET]

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.5V drive.

[SBD]

- Short reverse recovery time.
- Low forward voltage.

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V <sub>DSS</sub>		30	V
Gate-to-Source Voltage (*1)	V <sub>GSS</sub>		10	V
Drain Current (DC)	I <sub>D</sub>		0.7	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	2.8	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm) 1unit	0.6	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V <sub>R</sub> RM		30	V
Nonrepetitive Peak Reverse Surge Voltage	V <sub>R</sub> SM		30	V
Average Output Current	I <sub>O</sub>		0.5	A
Surge Forward Current	I <sub>FSM</sub>	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T <sub>j</sub>		-55 to +125	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

Marking : XY

(\*1) : Note, when designing a circuit using this it has a gate (oxide film) protection diode connected only between its gate and source.

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**SANYO Semiconductor Co., Ltd.**

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# MCH5834

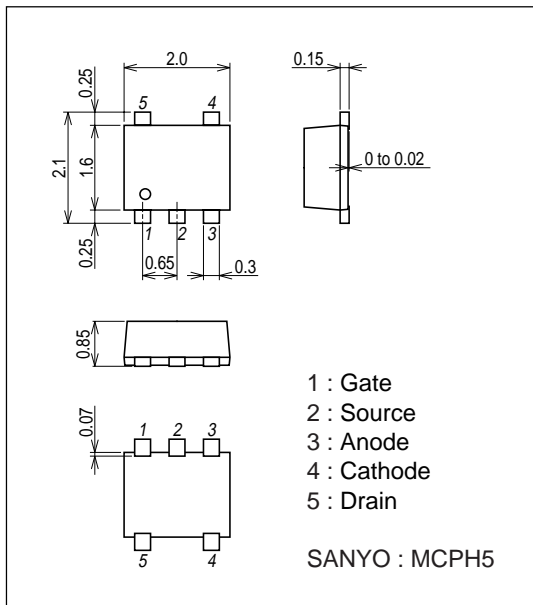
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$			1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=8V, V_{DS}=0V$			1	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=100\mu A$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=350mA$	0.45	0.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=350mA, V_{GS}=4V$		0.7	0.9	$\Omega$
	$R_{DS(on)2}$	$I_D=200mA, V_{GS}=2.5V$		0.8	1.15	$\Omega$
	$R_{DS(on)3}$	$I_D=10mA, V_{GS}=1.5V$		1.6	2.4	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		30		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		7		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		3.5		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8		ns
Rise Time	$t_r$	See specified Test Circuit.		6		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		10		ns
Fall Time	$t_f$	See specified Test Circuit.		8		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4V, I_D=700mA$		1		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=4V, I_D=700mA$		0.4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=4V, I_D=700mA$		0.2		nC
Diode Forward Voltage	$V_{SD}$	$I_S=700mA, V_{GS}=0V$		0.93	1.2	V
[SBD]						
Reverse Voltage	$V_R$	$I_R=0.5mA$	15			V
Forward Voltage	$V_{F1}$	$I_F=0.3A$		0.37	0.42	V
	$V_{F2}$	$I_F=0.5A$		0.42	0.47	V
Reverse Current	$I_R$	$V_R=15V$			120	$\mu A$
Interterminal Capacitance	$C$	$V_R=10V, f=1MHz$		13		pF
Reverse Recovery Time	$t_{rr}$	$I_F=I_R=100mA$ , See specified Test Circuit.			10	ns

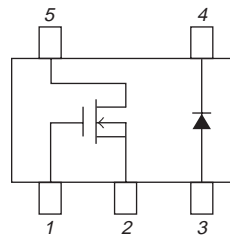
## Package Dimensions

unit : mm (typ)

7021A-008



## Electrical Connection



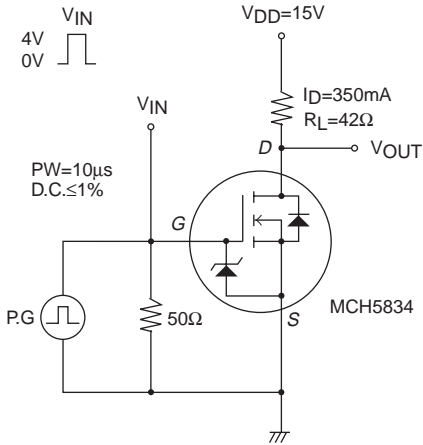
- 1 : Gate
- 2 : Source
- 3 : Anode
- 4 : Cathode
- 5 : Drain

Top view

# MCH5834

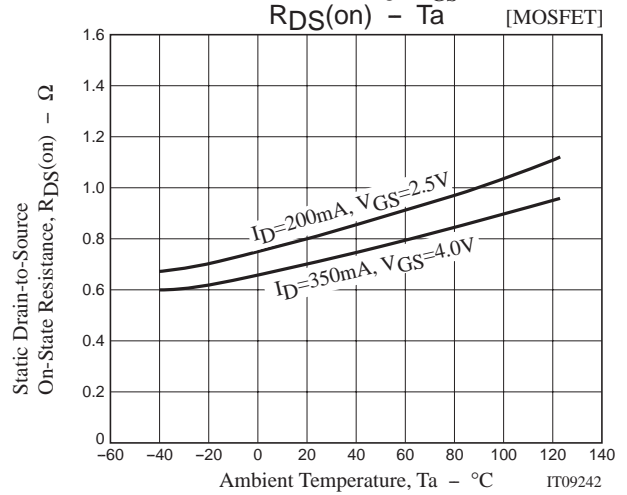
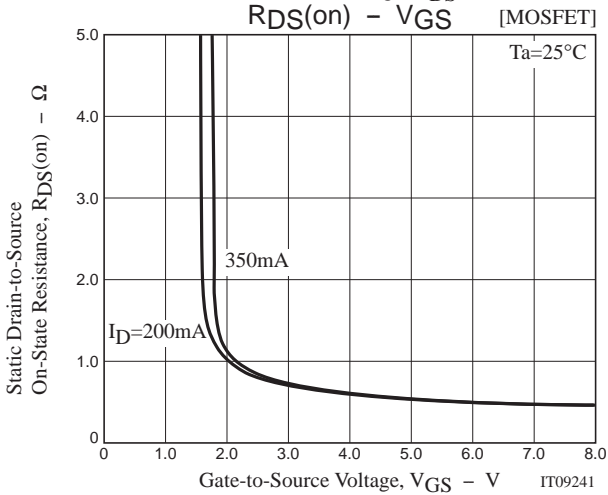
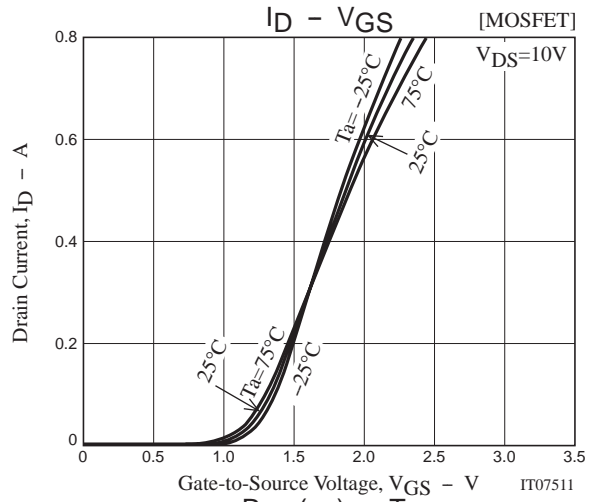
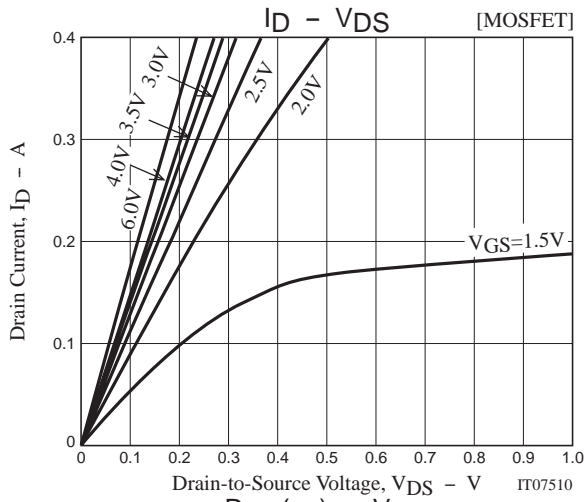
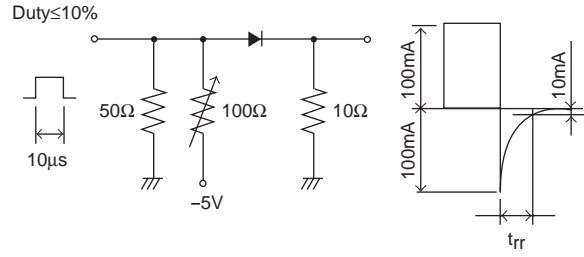
## Switching Time Test Circuit

[MOSFET]

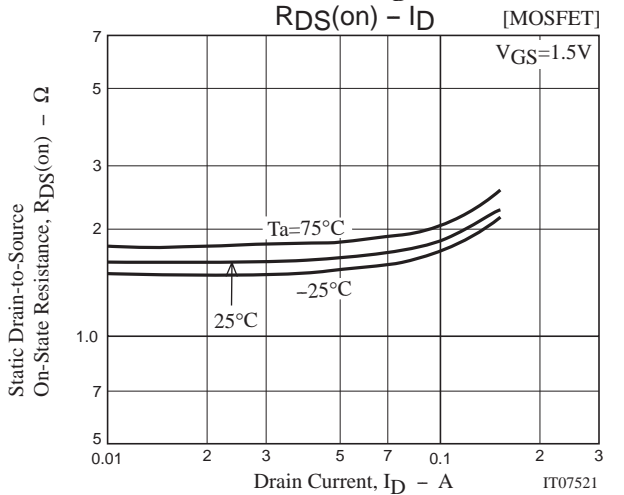
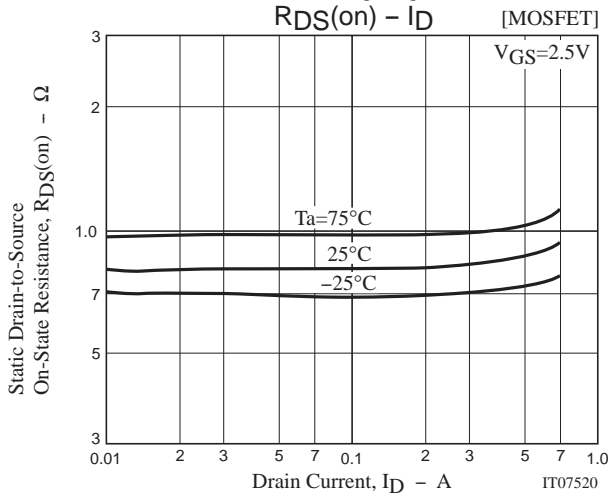
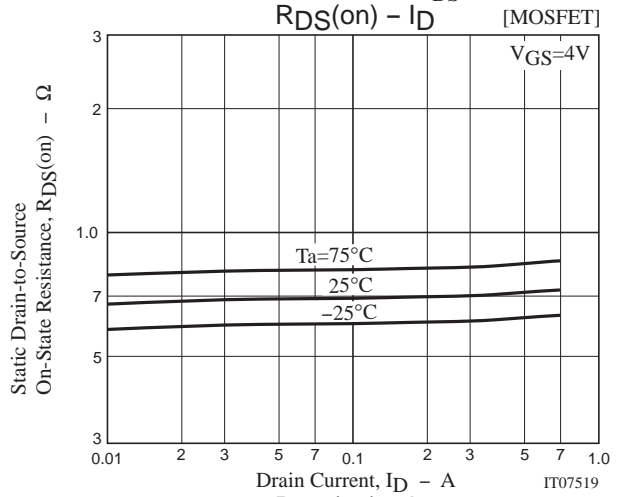
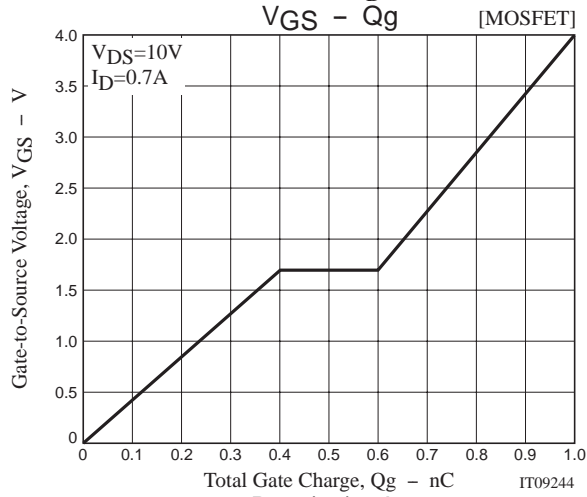
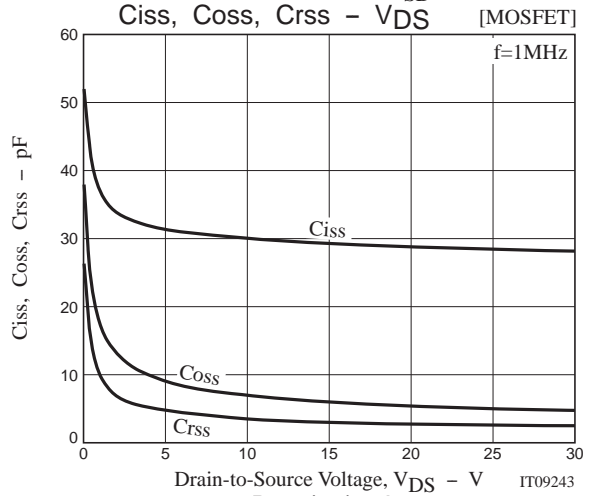
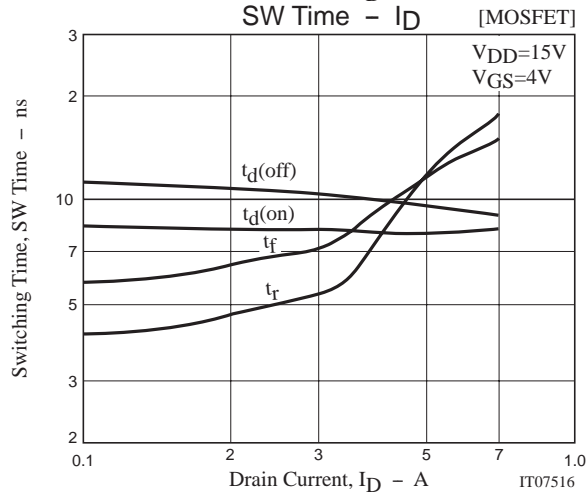
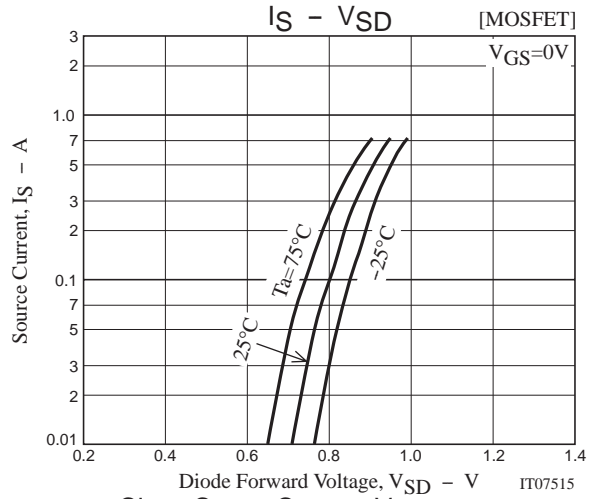
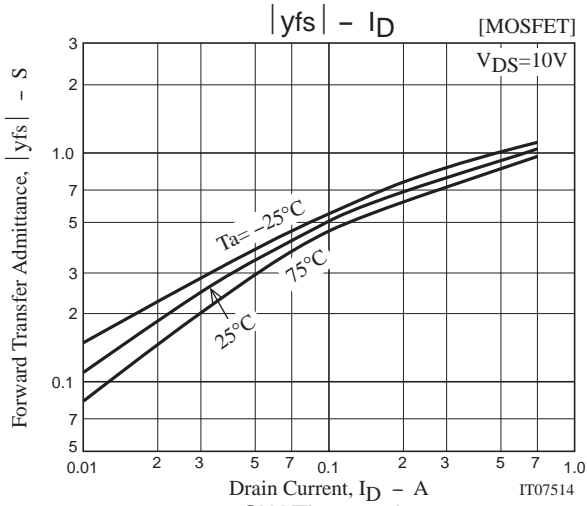


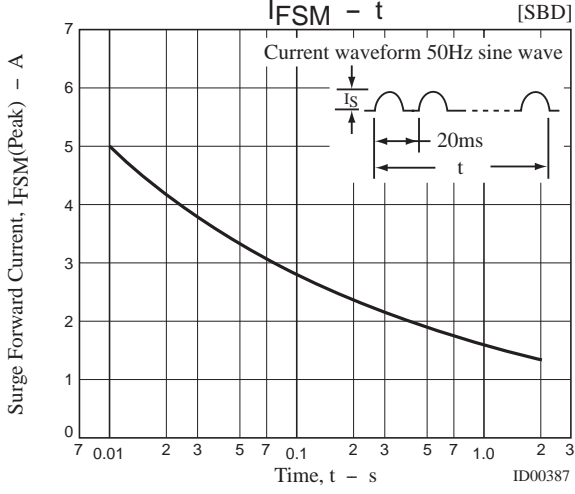
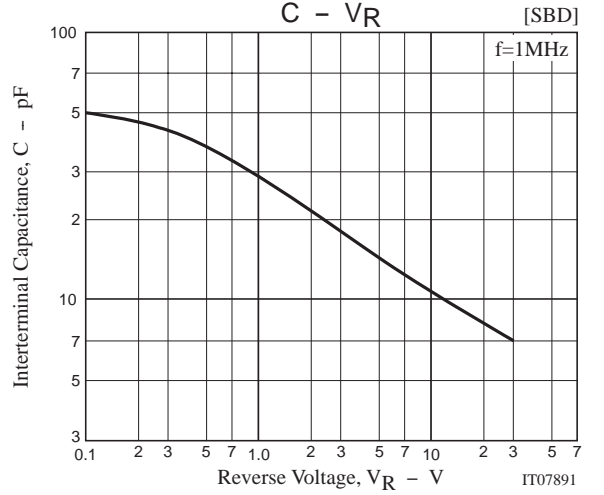
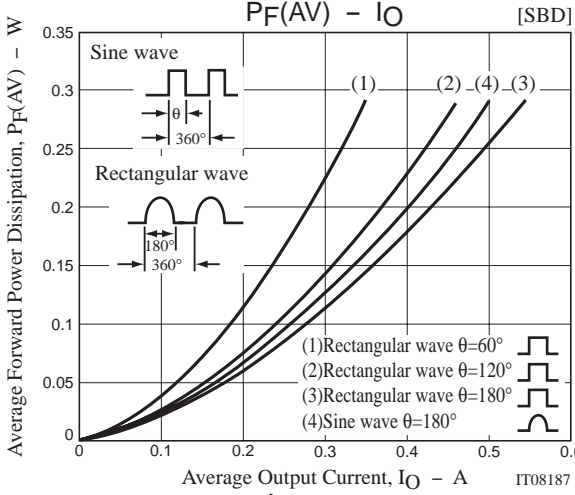
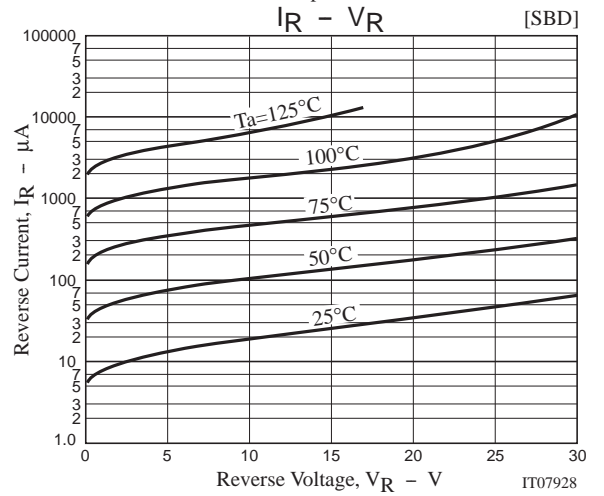
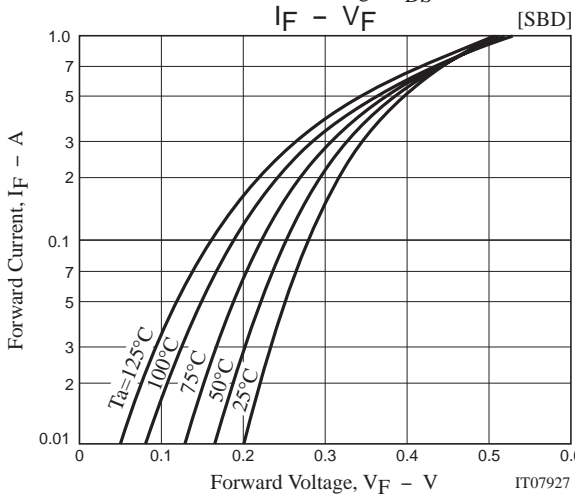
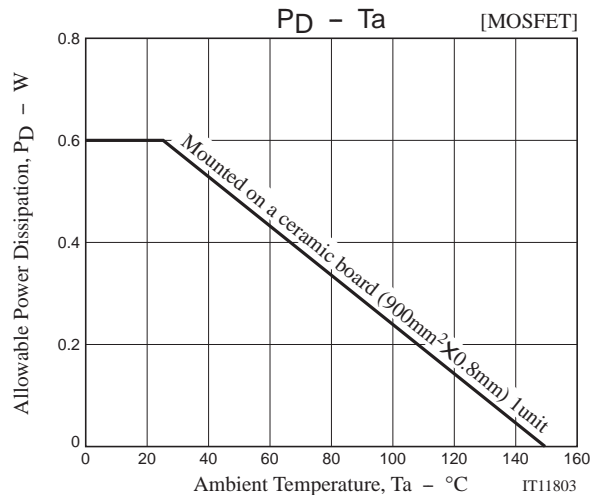
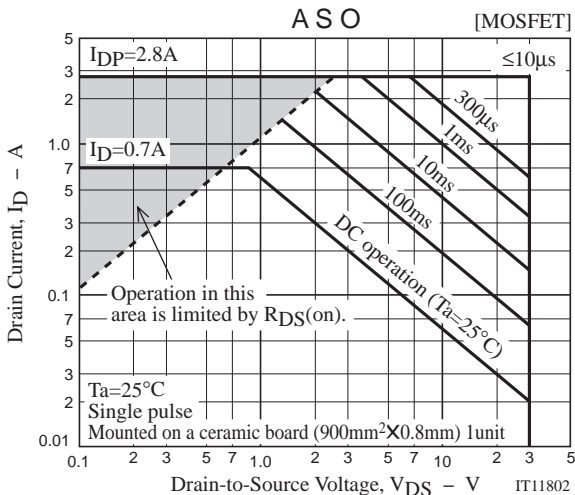
## t<sub>rr</sub> Test Circuit

[SBD]



# MCH5834





Note on usage : Since the MCH5834 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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