



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 _{DSS}		30	V
Gate-to-Source Voltage (*1)	V _{GSS}		10	V
Drain Current (DC)	I _D		0.7	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	2.8	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	0.6	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _{RRM}		30	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		30	V
Average Output Current	I _O		0.5	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	5	A
Junction Temperature	T _j		-55 to +125	°C
Storage Temperature	T _{stg}		-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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MCH5834

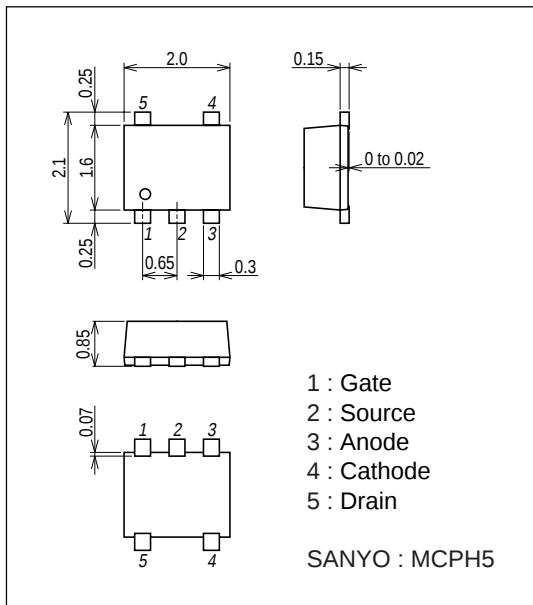
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=8V, VDS=0V			1	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=100μA	0.4		1.3	V
Forward Transfer Admittance	yfs	VDS=10V, ID=350mA	0.45	0.8		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=350mA, VGS=4V		0.7	0.9	Ω
	RDS(on)2	ID=200mA, VGS=2.5V		0.8	1.15	Ω
	RDS(on)3	ID=10mA, VGS=1.5V		1.6	2.4	Ω
Input Capacitance	Ciss	VDS=10V, f=1MHz		30		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		7		pF
Reverse Transfer Capacitance	Crss	VDS=10V, f=1MHz		3.5		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		8		ns
Rise Time	tr	See specified Test Circuit.		6		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		10		ns
Fall Time	tf	See specified Test Circuit.		8		ns
Total Gate Charge	Qg	VDS=10V, VGS=4V, ID=700mA		1		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=4V, ID=700mA		0.4		nC
Gate-to-Drain “Miller” Charge	Qgd	VDS=10V, VGS=4V, ID=700mA		0.2		nC
Diode Forward Voltage	VSD	IS=700mA, VGS=0V		0.93	1.2	V
[SBD]						
Reverse Voltage	VR	IR=0.5mA	15			V
Forward Voltage	VF1	IF=0.3A		0.37	0.42	V
	VF2	IF=0.5A		0.42	0.47	V
Reverse Current	IR	VR=15V			120	μA
Interterminal Capacitance	C	VR=10V, f=1MHz		13		pF
Reverse Recovery Time	trr	IF=IR=100mA, See specified Test Circuit.			10	ns

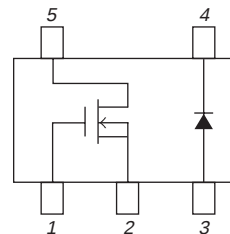
Package Dimensions

unit : mm (typ)

7021A-008



Electrical Connection

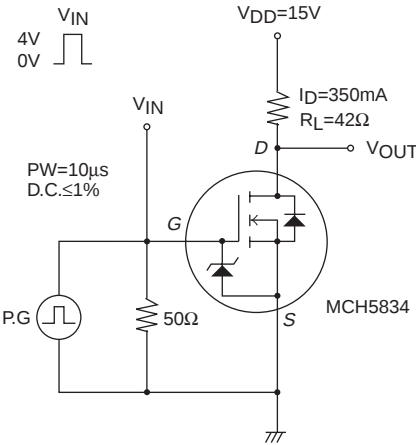


- 1 : Gate
- 2 : Source
- 3 : Anode
- 4 : Cathode
- 5 : Drain

Top view

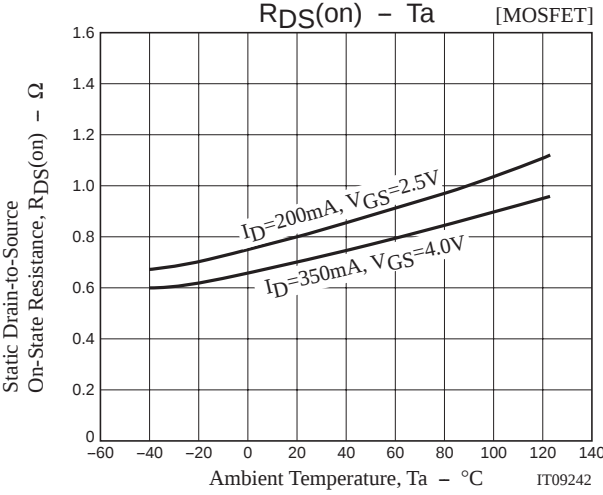
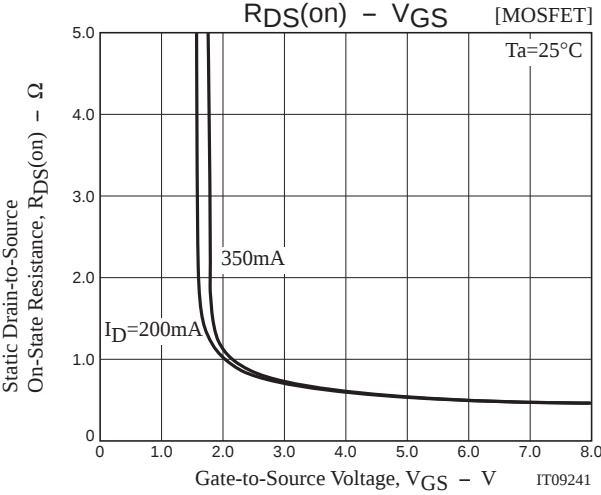
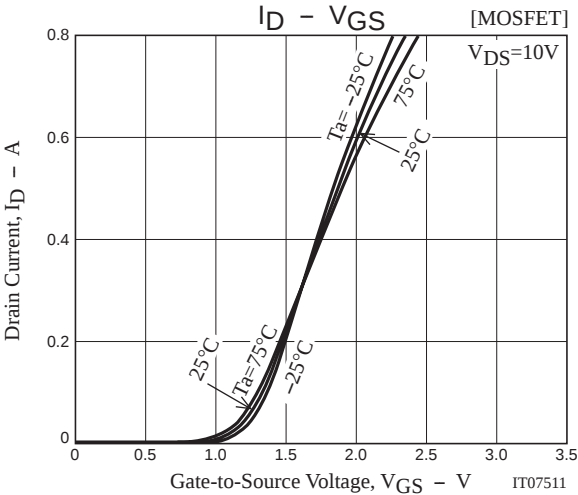
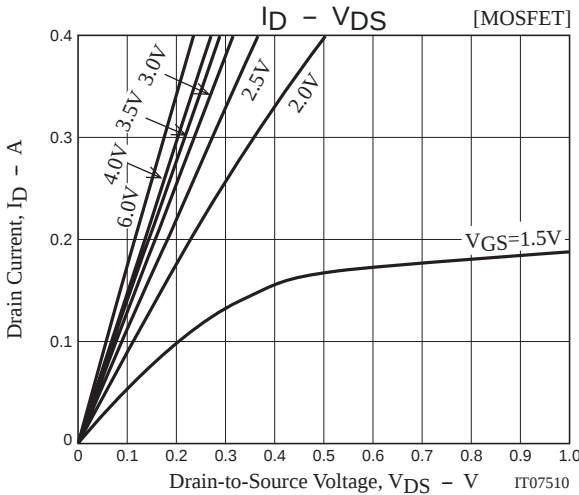
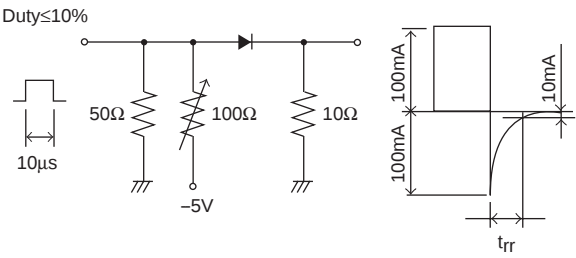
Switching Time Test Circuit

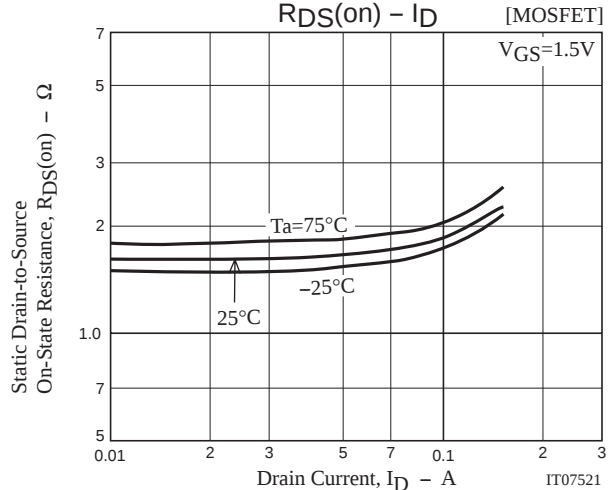
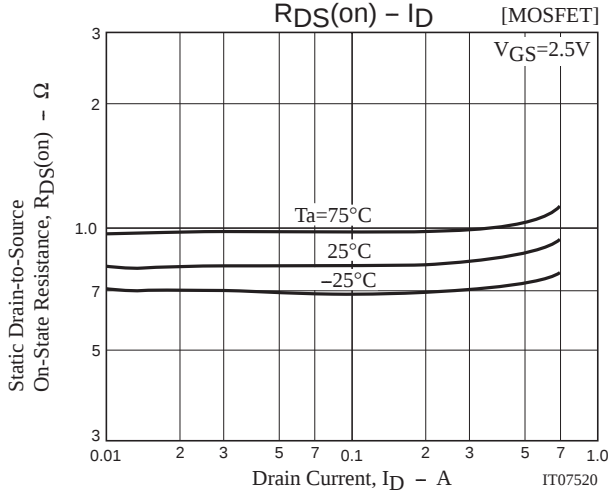
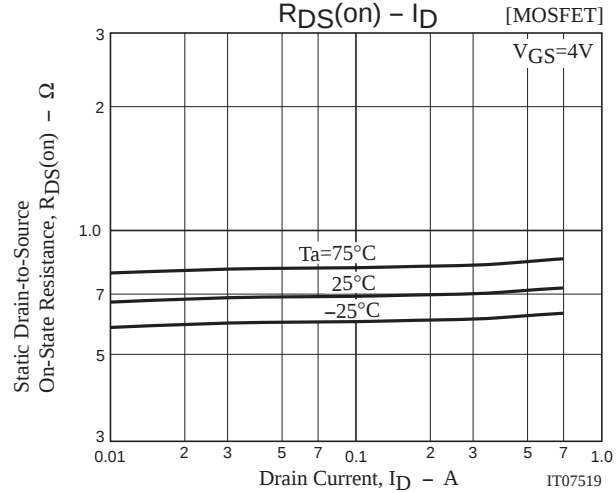
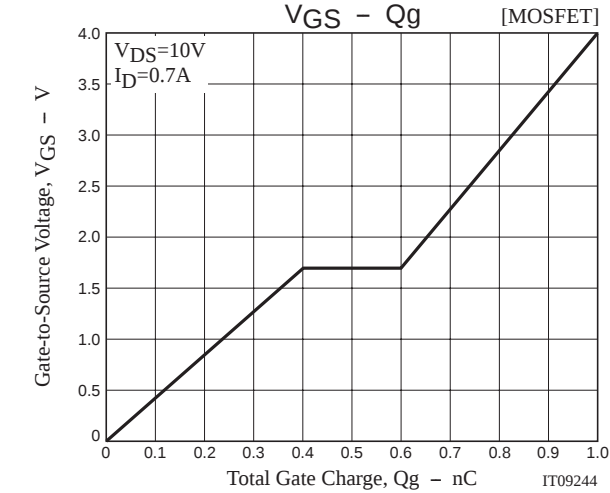
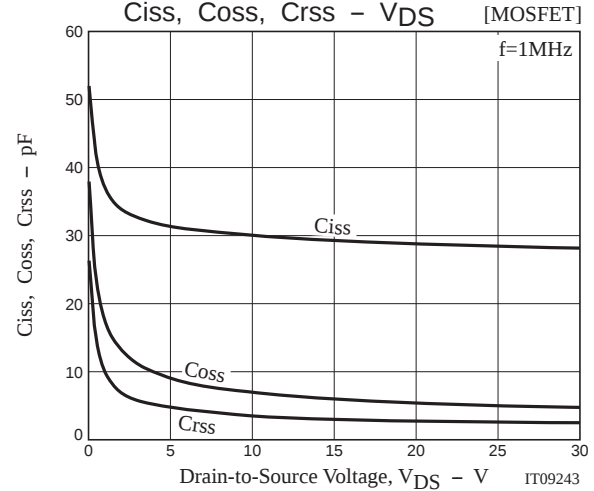
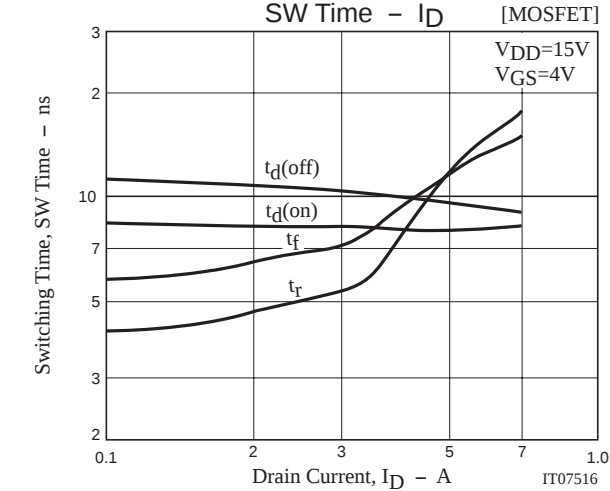
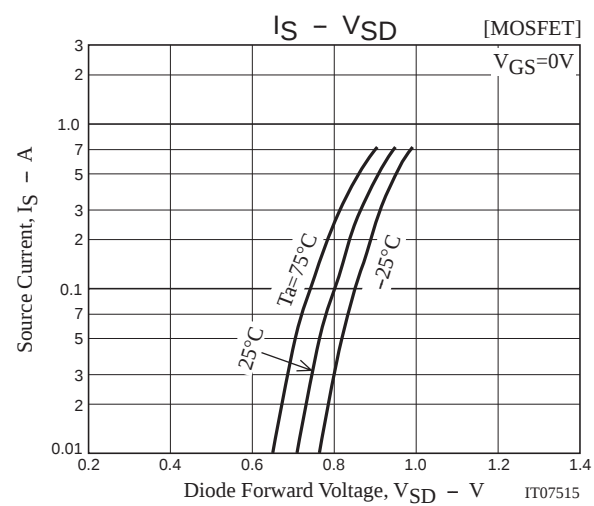
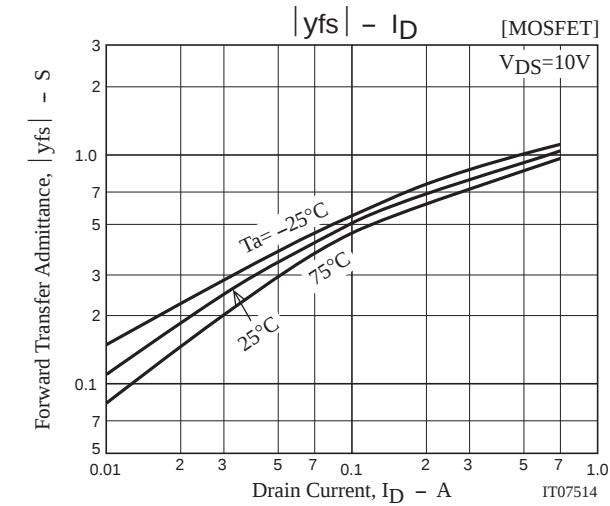
[MOSFET]

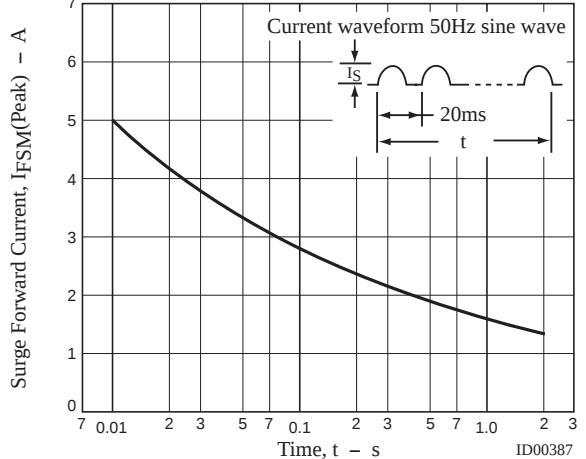
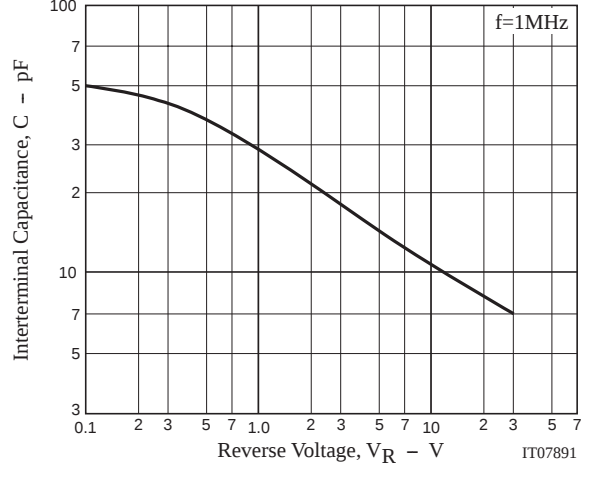
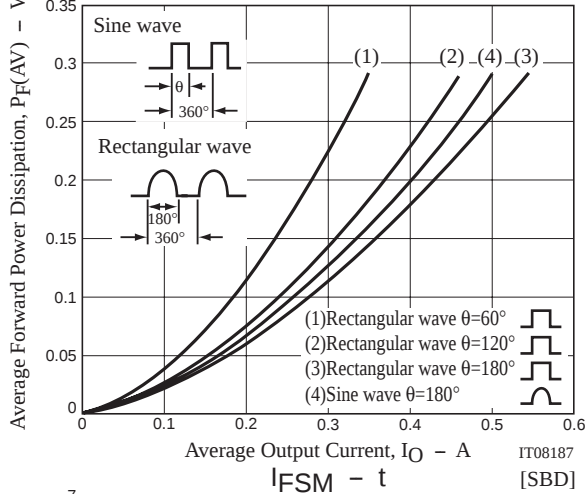
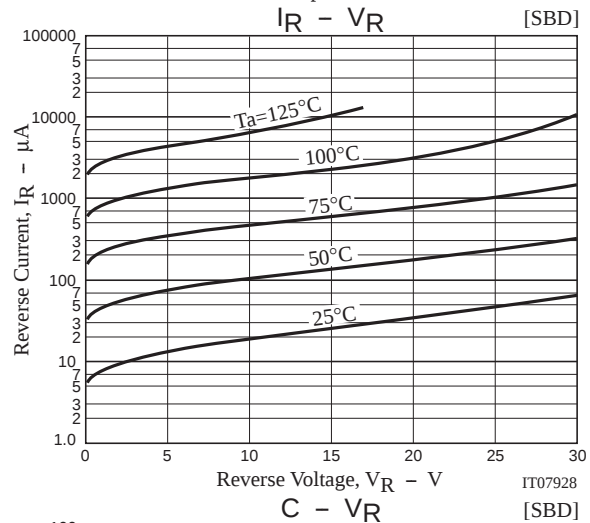
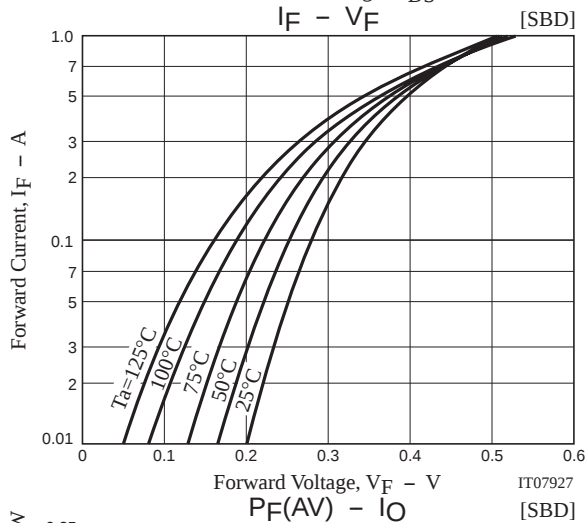
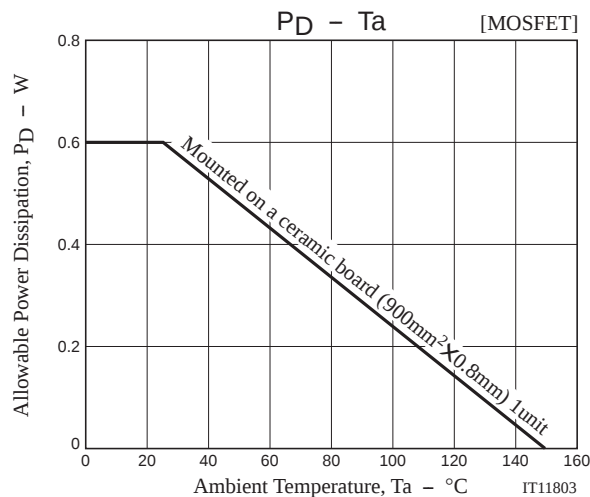
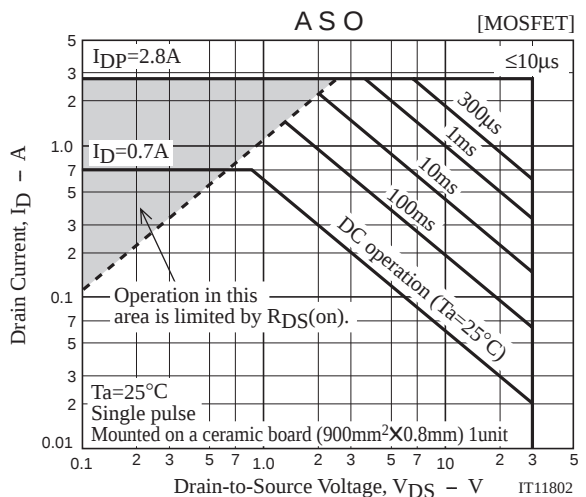


t_{rr} Test Circuit

[SBD]







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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