

Ordering number : ENN7424

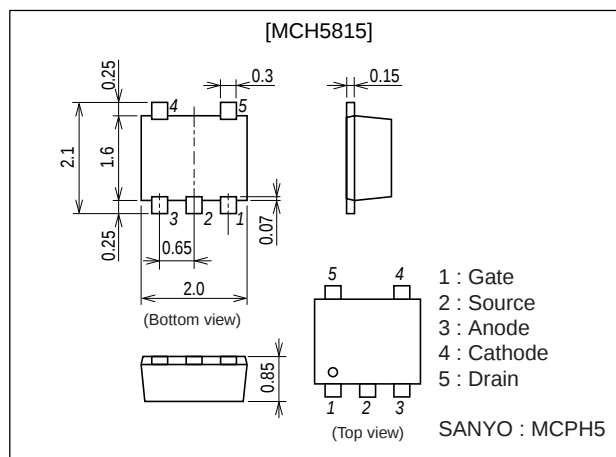
MOSFET : P-Channel Silicon MOSFET
SBD : Schottky Barrier Diode**MCH5815****DC / DC Converter Applications****Features**

- Composite type with a P-Channel Silicon MOSFET (MCH3317) and a Schottky Barrier Diode (SBS007M) contained in one package facilitating high-density mounting.
- [MOS]
 - 1) Low ON-resistance.
 - 2) Ultrahigh-speed switching.
 - 3) 1.8V drive.
- [SBD]
 - 1) Short reverse recovery time.
 - 2) Low forward voltage.

Package Dimensions

unit : mm

2195

**Specifications****Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V_{DSS}		-12	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		-1.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	-6.0	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² ×0.8mm) 1unit	0.8	W
Channel Temperature	T_{ch}		-150	°C
Storage Temperature	T_{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		15	V
Nonrepetitive Peak Reverse Surge Voltage	V_{RSM}		15	V
Average Output Current	I_O		0.5	A
Surge Forward Current	I_{FSM}	50Hz sine wave, 1 cycle	3	A
Junction Temperature	T_J		-55 to +125	°C
Storage Temperature	T_{stg}		-55 to +125	°C

Marking : QR

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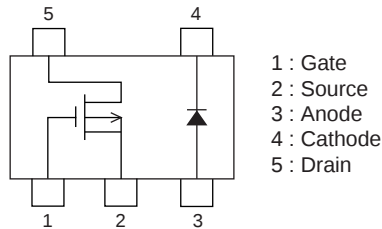
32603 TS IM TA3841 No.7424-1/5

MCH5815

Electrical Characteristics at Ta=25°C

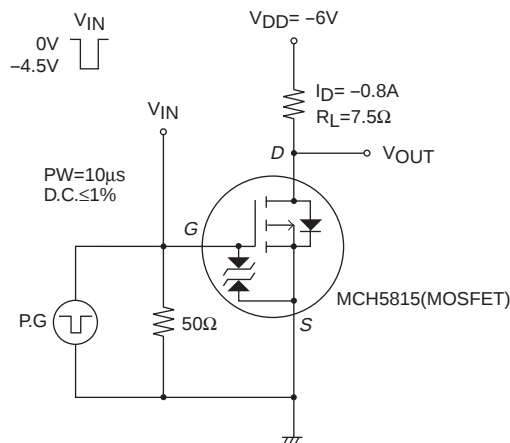
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0	-12			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-12V, VGS=0			-10	μA
Gate-to-Source Leakage Current	IGSS	VGS=±8.0V, VDS=0			±10	μA
Cutoff Voltage	VGS(off)	VDS=-6V, ID=-1mA	-0.3		-1.0	V
Forward Transfer Admittance	yfs	VDS=-6V, ID=-0.8A	1.3	1.8		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-0.8A, VGS=-4.5V		220	290	mΩ
	RDS(on)2	ID=-0.4A, VGS=-2.5V		320	450	mΩ
	RDS(on)3	ID=-0.1A, VGS=-1.8V		430	650	mΩ
Input Capacitance	Ciss	VDS=-6V, f=1MHz		160		pF
Output Capacitance	Coss	VDS=-6V, f=1MHz		45		pF
Reverse Transfer Capacitance	Crss	VDS=-6V, f=1MHz		35		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		11		ns
Rise Time	tr	See specified Test Circuit.		45		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		29		ns
Fall Time	tf	See specified Test Circuit.		30		ns
Total Gate Charge	Qg	VDS=-6V, VGS=-4.5V, ID=-1.5A		2.6		nC
Gate-to-Source Charge	Qgs	VDS=-6V, VGS=-4.5V, ID=-1.5A		0.25		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=-6V, VGS=-4.5V, ID=-1.5A		0.65		nC
Diode Forward Voltage	VSD	IS=-1.5A, VGS=0		-0.92	-1.5	V
[SBD]						
Reverse Voltage	VR	IR=0.5mA	15			V
Forward Voltage	VF1	IF=0.3A		0.35	0.41	V
	VF2	IF=0.5A		0.4	0.46	V
Reverse Current	IR	VR=6V			200	μA
Interterminal Capacitance	C	VR=10V, f=1MHz cycle		20		pF
Reverse Recovery Time	trr	IF=IR=100mA, see specified Test Circuit.			10	ns

Electrical Connection (Top view)



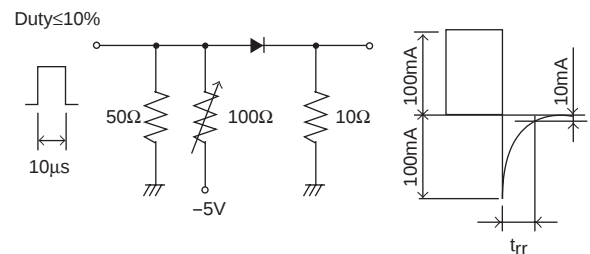
Switching Time Test Circuit

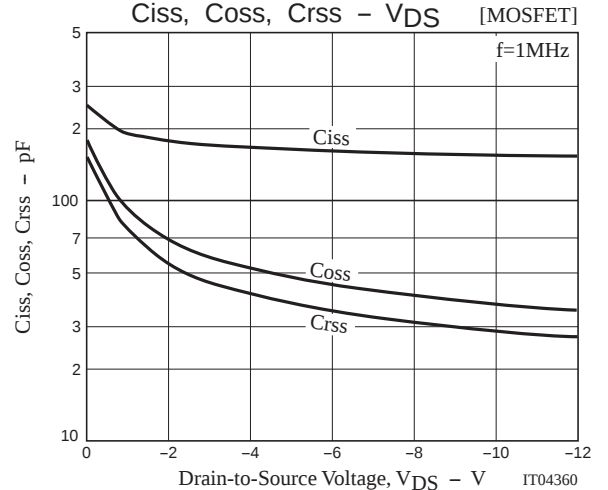
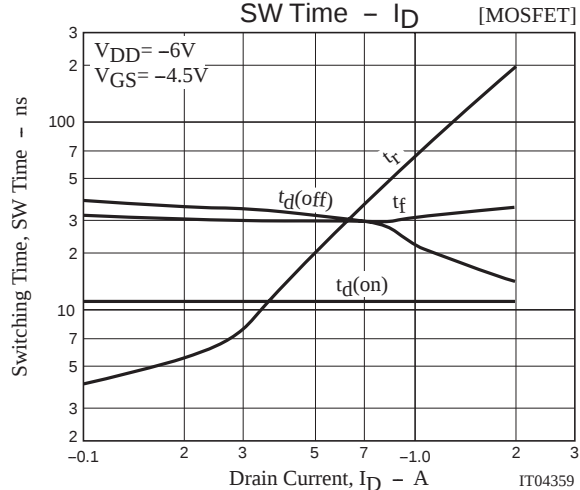
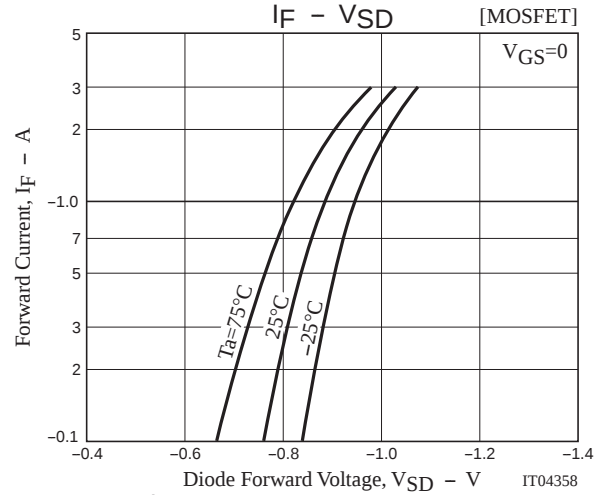
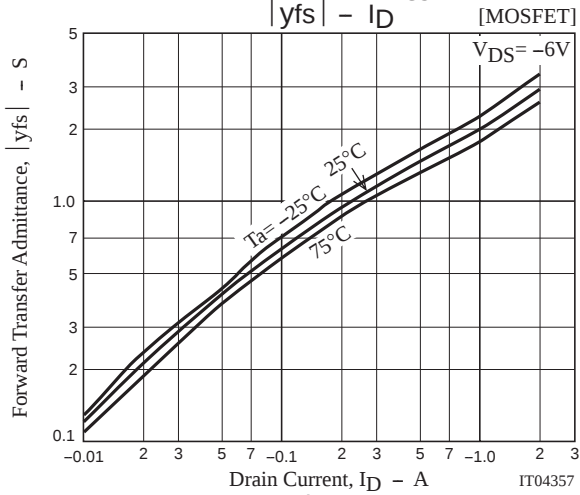
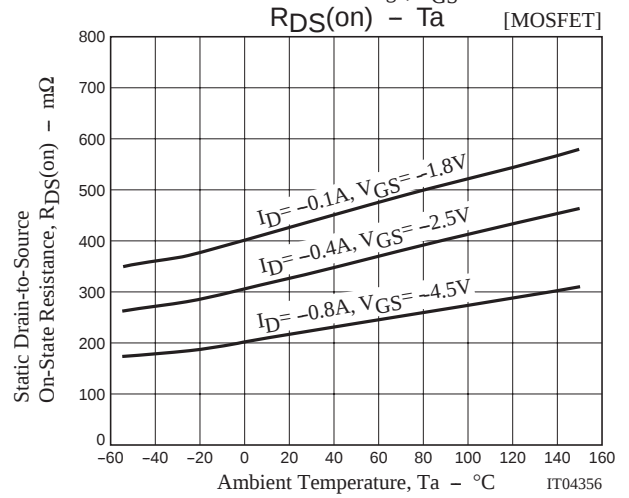
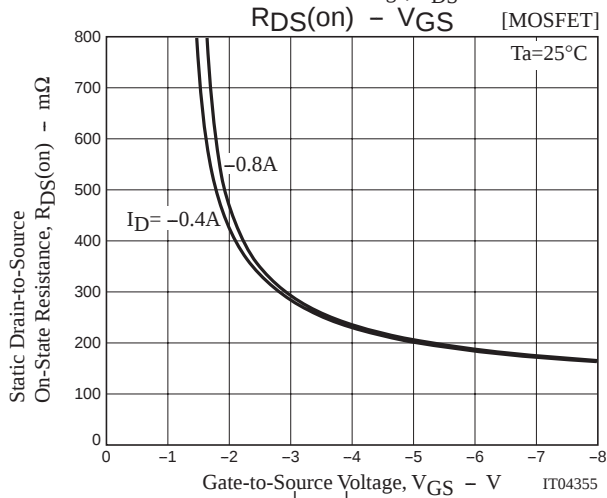
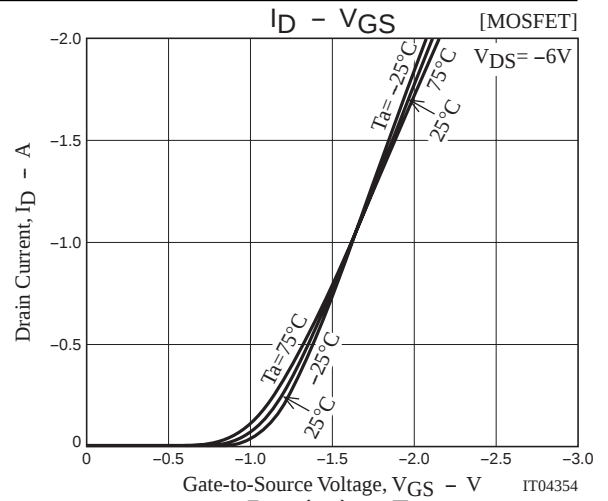
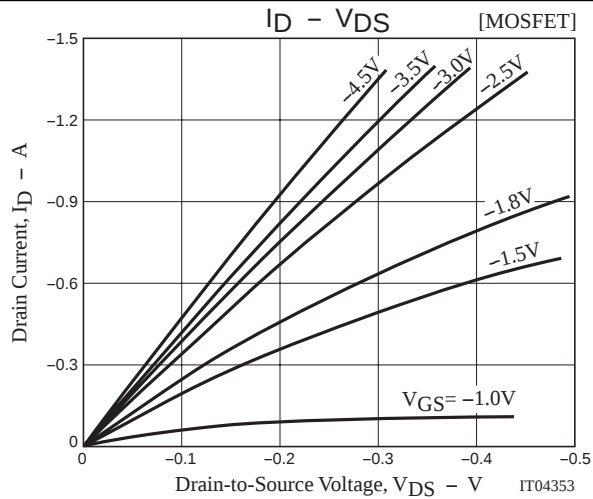
[MOSFET]

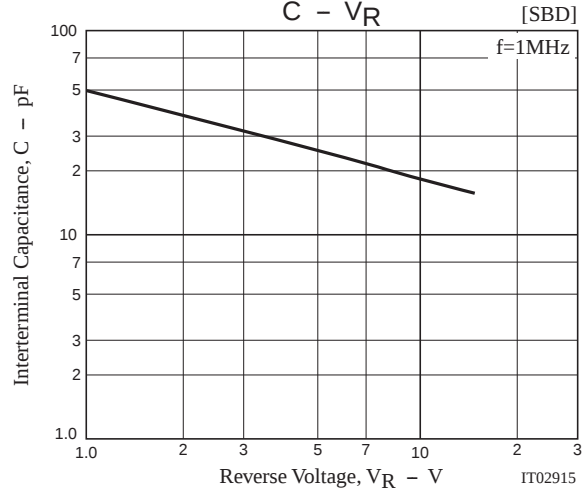
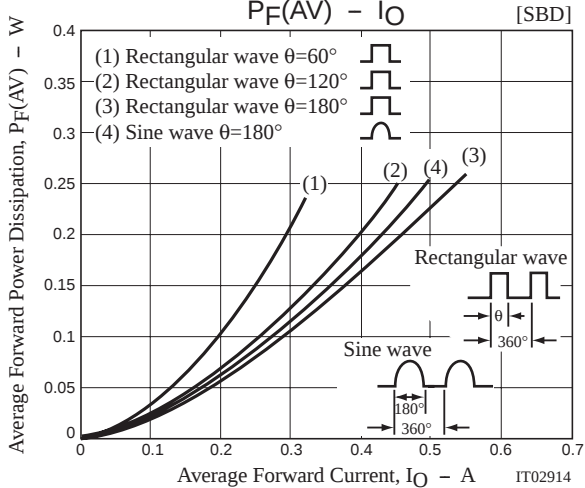
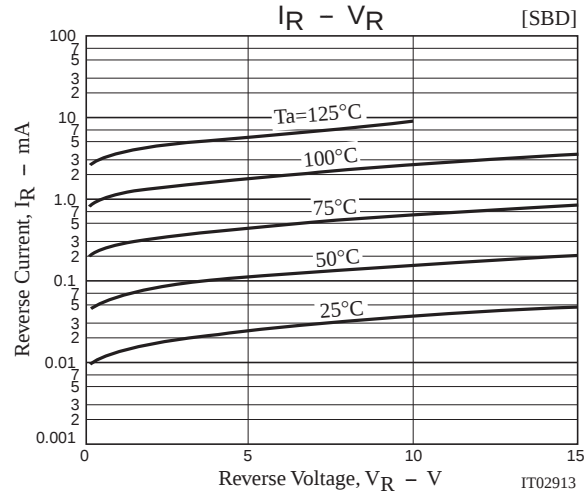
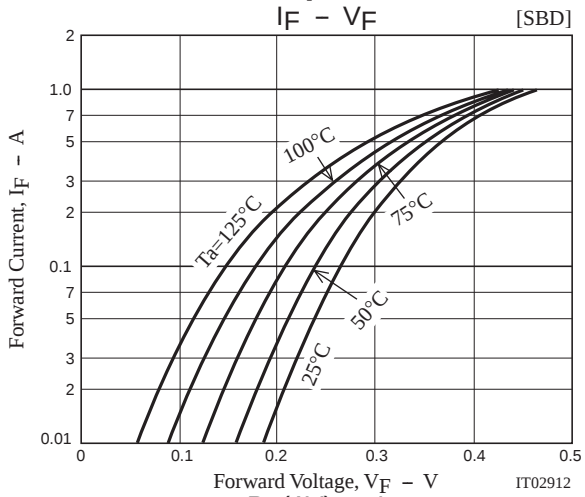
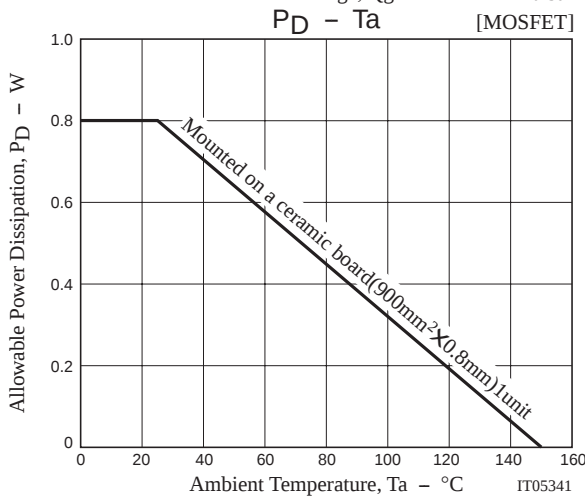
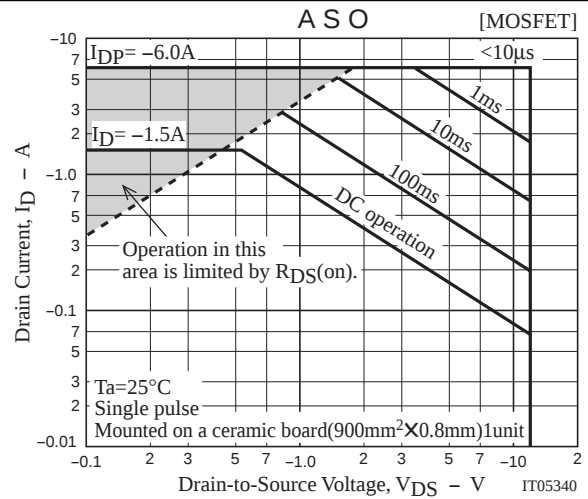
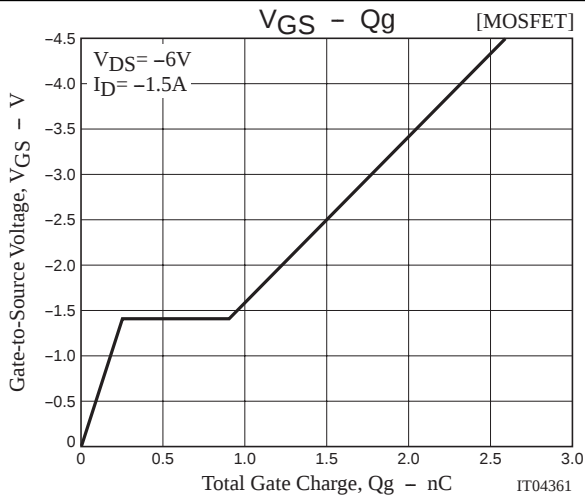


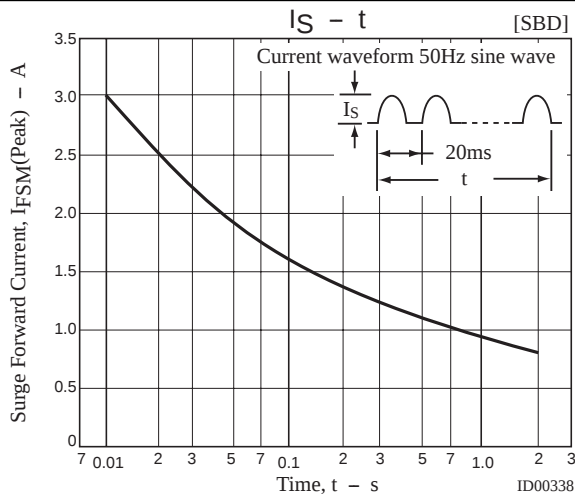
t_{rr} Test Circuit

[SBD]









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