Ordering number : ENA1484

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

EMH2407R — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)1$: 16mΩ(typ.)
- Common-drain type
- Halogen free compliance
- Best suited for LiB charging and discharging switch
- 2.5V drive

Specifications

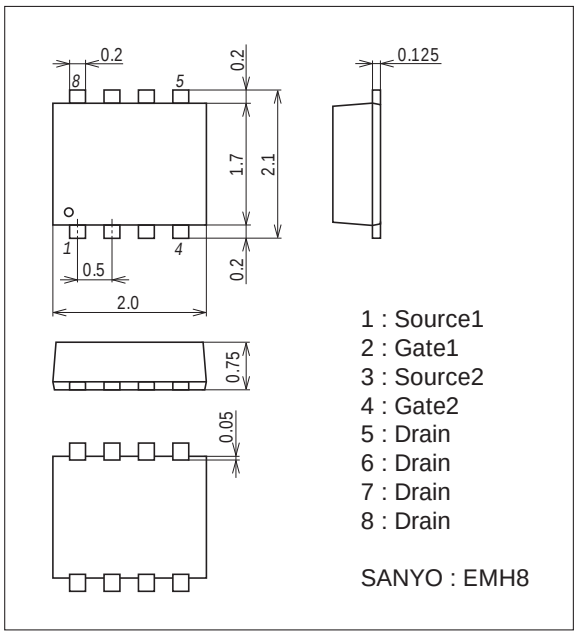
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±12	V
Drain Current (DC)	I_D		6	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	60	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm²×0.8mm) 1unit	1.3	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm²×0.8mm)	1.4	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

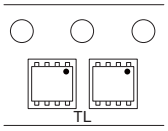
7045-006



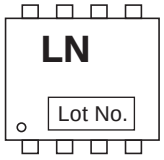
Product & Package Information

- Package : EMH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

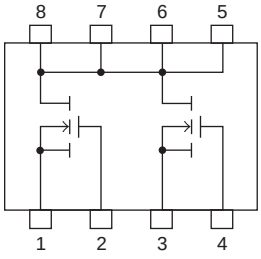
Taping Type : TL



Marking



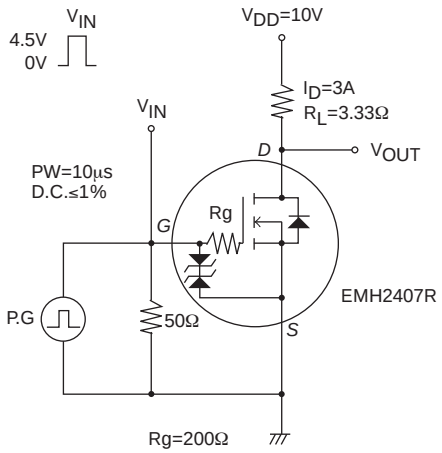
Electrical Connection

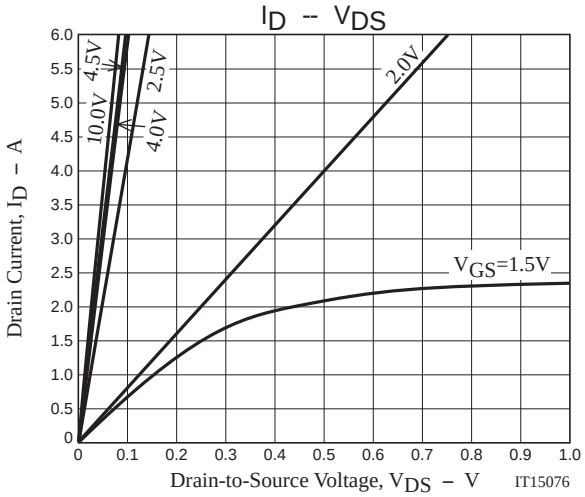


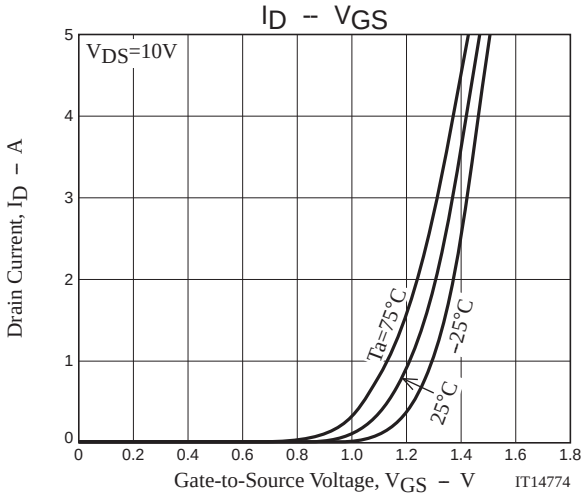
Electrical Characteristics at Ta=25°C

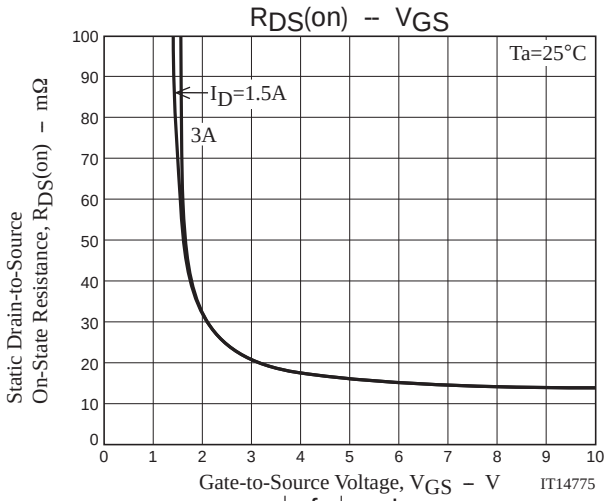
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	0.5		1.3	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=3A		5		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=3A, V_{GS}=4.5V	11	16	21	mΩ
	R_{DS}(on)2	I_D=3A, V_{GS}=4V	11.5	17	23	mΩ
	R_{DS}(on)3	I_D=1.5A, V_{GS}=2.5V	14	24	34	mΩ
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		400		ns
Rise Time	t_r	See specified Test Circuit.		820		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		4500		ns
Fall Time	t_f	See specified Test Circuit.		2100		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		60		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		14		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=4.5V, I_D=6A		13		nC
Diode Forward Voltage	V_{SD}	I_S=6A, V_{GS}=0V		0.8	1.2	V

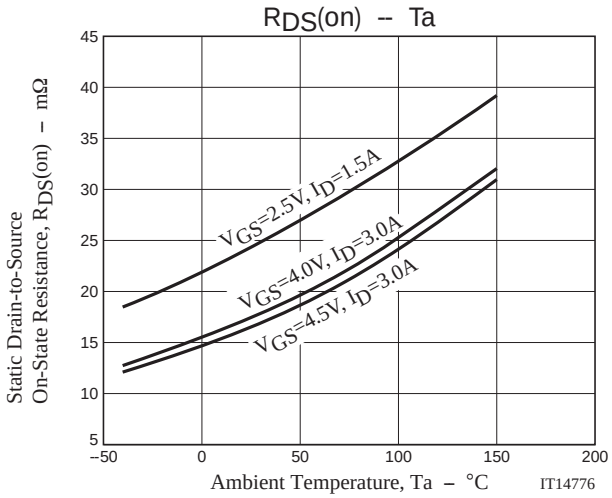
Switching Time Test Circuit

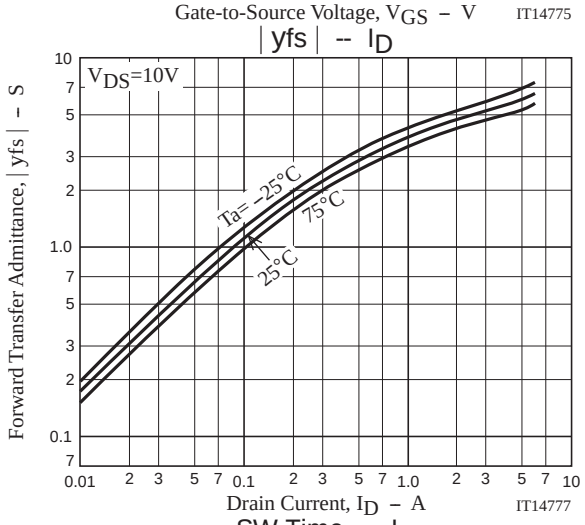


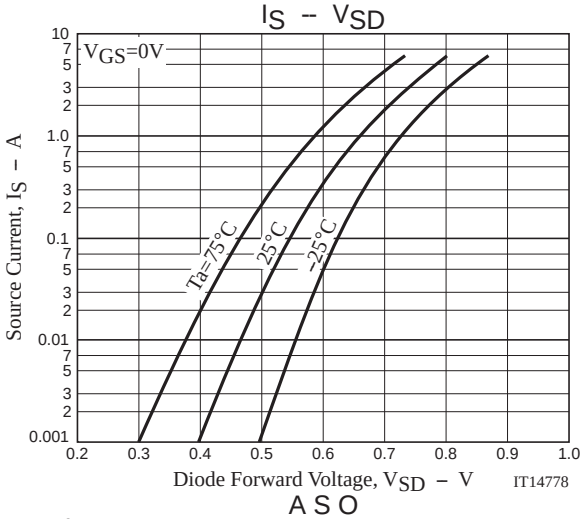


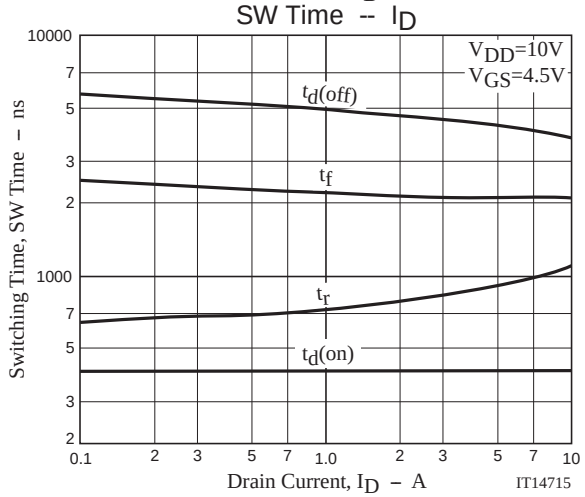


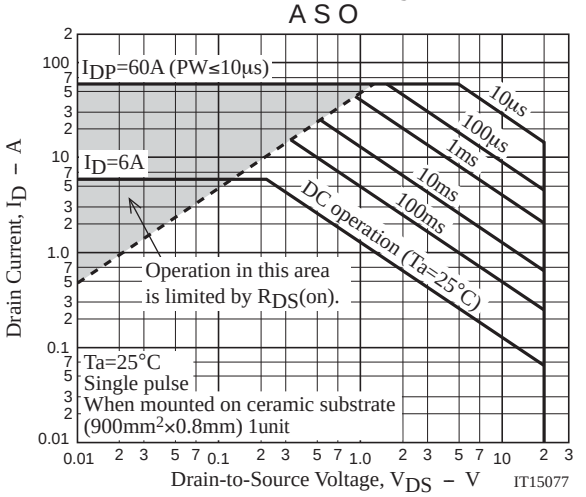

RDS(on) -- VGS
Ta=25°C
ID=1.5A
3A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT14775

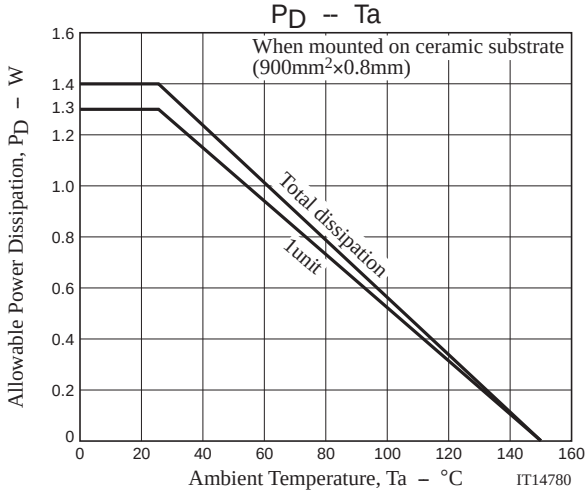

RDS(on) -- Ta
VGS=2.5V, ID=1.5A
VGS=4.0V, ID=3.0A
VGS=4.5V, ID=3.0A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT14776


| yfs | -- ID
VDS=10V
Ta=–25°C
75°C
25°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14777


IS -- VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14778


SW Time -- ID
VDD=10V
VGS=4.5V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT14715


A S O
IDP=60A (PW≤10μs)
ID=6A
10μs
100μs
1ms
10ms
100ms
DC operation (Ta=25°C)
Operation in this area is limited by RDS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate (900mm²×0.8mm) 1unit
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT15077


PD -- Ta
When mounted on ceramic substrate (900mm²×0.8mm)
Total dissipation
1unit
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT14780

Note on usage : Since the EMH2407R is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of April, 2010. Specifications and information herein are subject to change without notice.