SCH2825-TL-E Datasheet

https://www.DiGi-Electronics.com

DiGi Electronics Part Number	SCH2825-TL-E-DG
Manufacturer	onsemi
Manufacturer Product Number	SCH2825-TL-E
Description	MOSFET N-CH 30V 1.6A 6SCH
Detailed Description	N-Channel 30 V 1.6A (Ta) 600mW (Ta) Surface Mount 6-SCH

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
SCH2825-TL-E	onsemi
Series:	Product Status:
-	Obsolete
FET Type:	Technology:
N-Channel	MOSFET (Metal Oxide)
Drain to Source Voltage (Vdss):	Current - Continuous Drain (Id) @ 25°C:
30 V	1.6A (Ta)
Drive Voltage (Max Rds On, Min Rds On):	Rds On (Max) @ Id, Vgs:
4V, 10V	180mOhm @ 800mA, 10V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
-	2 nC @ 10 V
Vgs (Max):	Input Capacitance (Ciss) (Max) @ Vds:
±20V	88 pF @ 10 V
FET Feature:	Power Dissipation (Max):
Schottky Diode (Isolated)	600mW (Ta)
Operating Temperature:	Mounting Type:
-55°C ~ 125°C (TJ)	Surface Mount
Supplier Device Package:	Package / Case:
6-SCH	6-SMD, Flat Leads
Base Product Number:	
SCH282	

Environmental & Export classification

Moisture Sensitivity Level (MSL):	REACH Status:
1 (Unlimited)	REACH Unaffected
ECCN:	HTSUS:
EAR99	8541.21.0095

Ordering number : ENA1006B

SCH2825

N-Channel Power MOSFET
30V, 1.6A, 180mΩ, Single SCH6 with Schottky Diode

ON Semiconductor®
http://onsemi.com

Features

- Composite type with a N-channel sillicon MOSFET and a schottky barrier diode contained in one package facilitating high-density mounting
- [MOSFET] · Low ON-resistance · Ultrahigh-speed switching · 4V drive
- [SBD] · Short reverse recovery time · Low forward voltage

Specifications

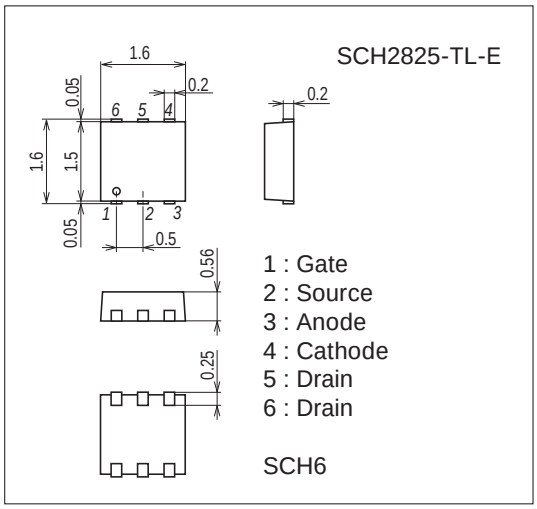
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain to Source Voltage	V_{DSS}		30	V
Gate to Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		1.6	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	6.4	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm^2×0.8mm) 1unit	0.6	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−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	3	A
Junction Temperature	Tj		−55 to +125	°C
Storage Temperature	Tstg		−55 to +125	°C

This product is designed to “ESD immunity < 200V*”, so please take care when handling.
* Machine Model

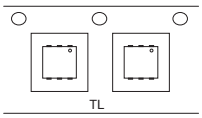
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions
unit : mm (typ)
7028-003



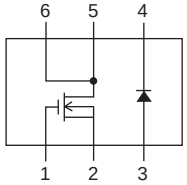
Product & Package Information
- Package : SCH6
- JEITA, JEDEC : SOT-563
- Minimum Packing Quantity : 5,000 pcs./reel

Packing Type : TL



Marking

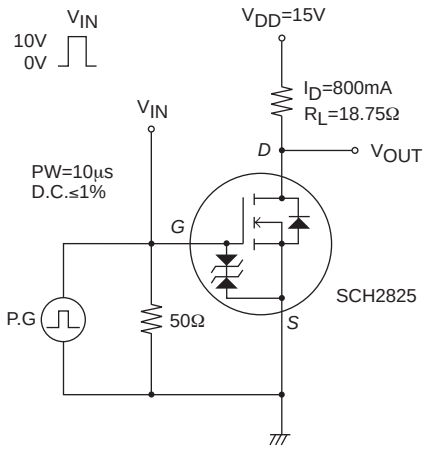
Electrical Connection



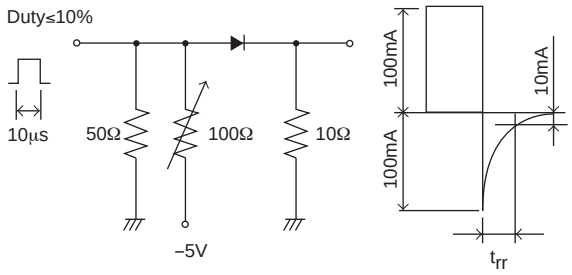
Electrical Characteristics at Ta=25°C

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	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=800mA	0.6	1.0		S
Static Drain to Source On-State Resistance	R_{DS}(on)1	I_D=800mA, V_{GS}=10V		135	180	mΩ
	R_{DS}(on)2	I_D=400mA, V_{GS}=4V		230	330	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		88		pF
Output Capacitance	Coss			19		pF
Reverse Transfer Capacitance	Crss			11		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		3.4		ns
Rise Time	t_r			3.5		ns
Turn-OFF Delay Time	t_d(off)			10.6		ns
Fall Time	t_f			4.0		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=1.6A		2.0		nC
Gate to Source Charge	Qgs			0.33		nC
Gate to Drain “Miller” Charge	Qgd			0.29		nC
Diode Forward Voltage	V_{SD}	I_S=1.6A, V_{GS}=0V		0.82	1.2	V
[SBD]						
Reverse Voltage	V_R	I_R=0.5mA	30			V
Forward Voltage	V_F	I_F=0.5A		0.42	0.48	V
Reverse Current	I_R	V_R=15V			120	μA
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

Switching Time Test Circuit
(MOSFET)

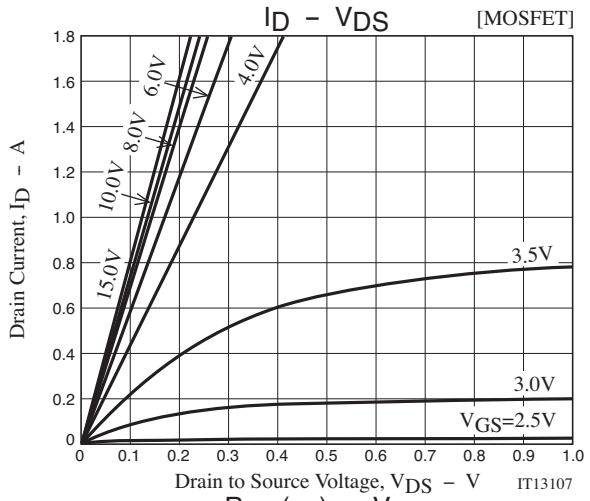


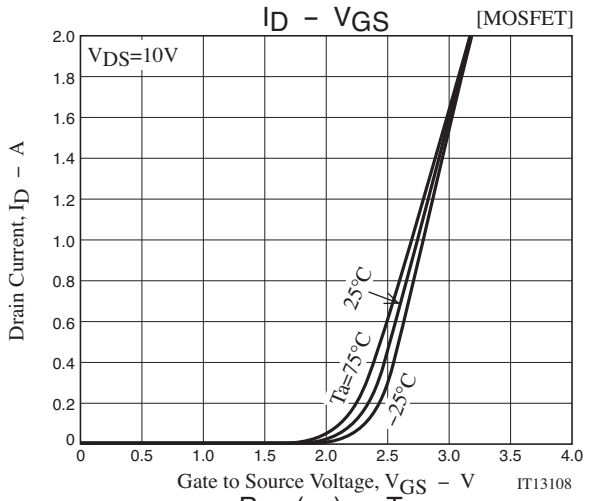
t_{rr} Test Circuit
(SBD)

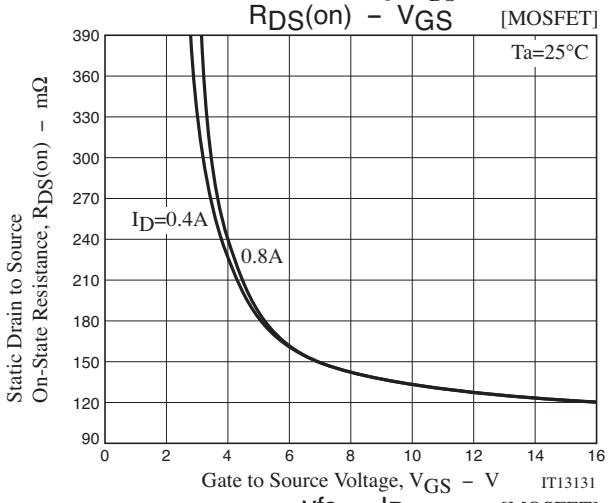


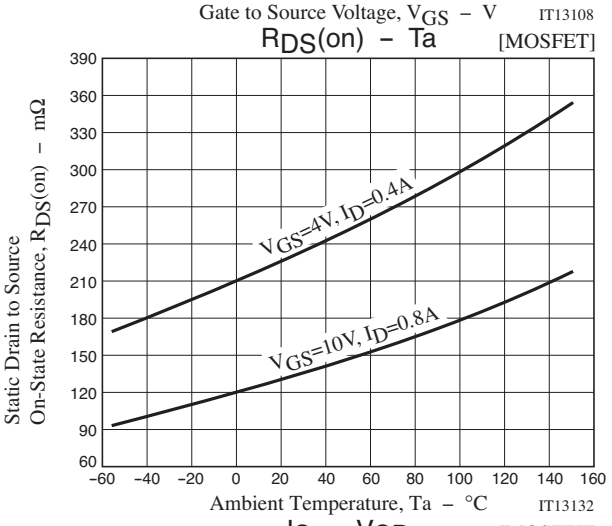
Ordering Information

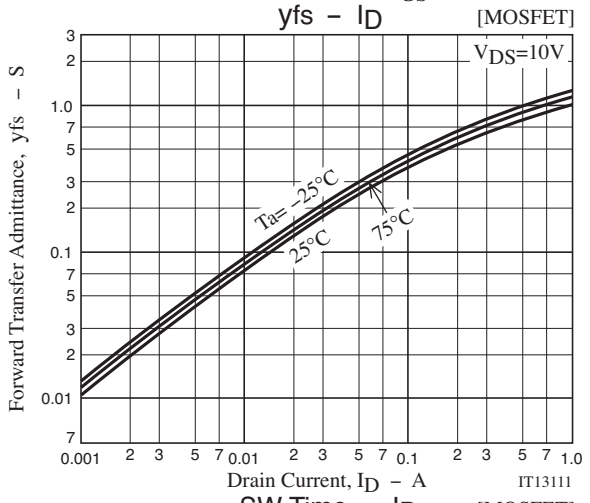
Device	Package	Shipping	memo
SCH2825-TL-E	SCH6	5,000pcs./reel	Pb Free

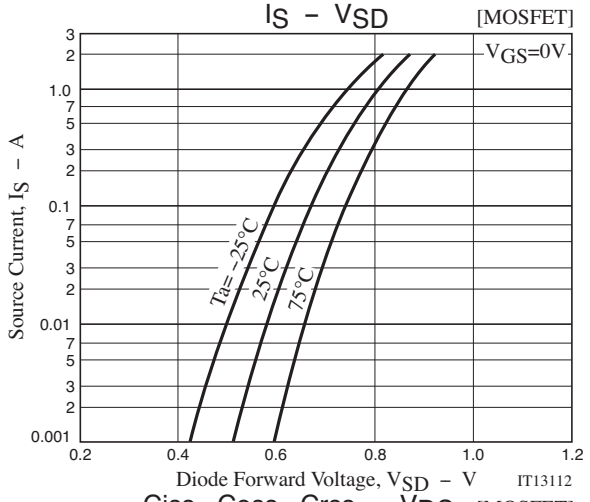

ID – VDS [MOSFET]
Drain Current, ID – A
Drain to Source Voltage, VDS – V
IT13107
4.0V
6.0V
8.0V
10.0V
15.0V
3.5V
3.0V
VGS=2.5V

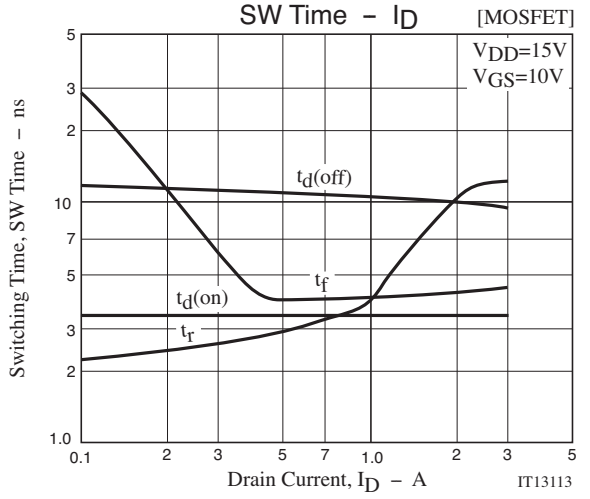

ID – VGS [MOSFET]
VDS=10V
Drain Current, ID – A
Gate to Source Voltage, VGS – V
IT13108
25°C
Ta=75°C
–25°C

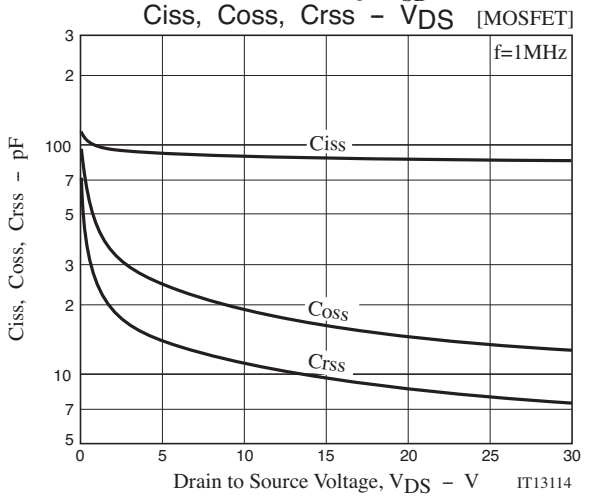

RDS(on) – VGS [MOSFET]
Ta=25°C
Static Drain to Source On-State Resistance, RDS(on) – mΩ
Gate to Source Voltage, VGS – V
IT13131
ID=0.4A
0.8A


RDS(on) – Ta [MOSFET]
Static Drain to Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT13132
VGS=4V, ID=0.4A
VGS=10V, ID=0.8A

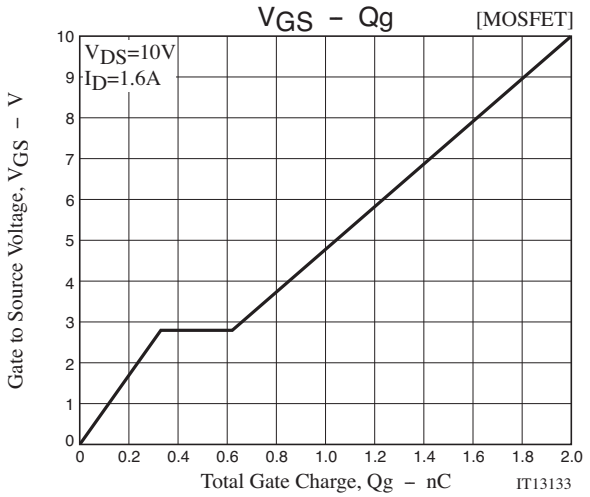

yfs – ID [MOSFET]
VDS=10V
Forward Transfer Admittance, yfs – S
Drain Current, ID – A
IT13111
Ta=–25°C
25°C
75°C

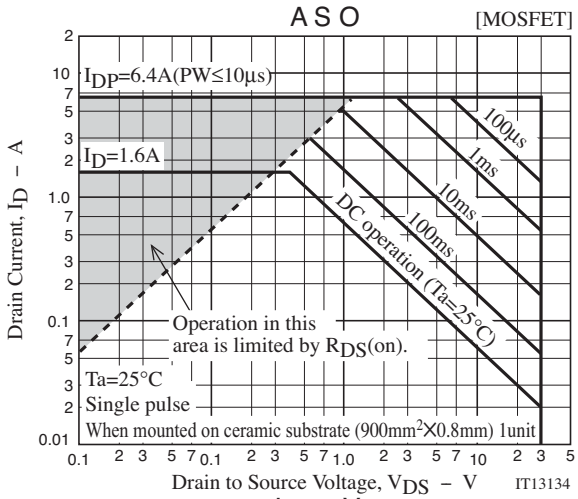

IS – VSD [MOSFET]
VGS=0V
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT13112
Ta=–25°C
25°C
75°C

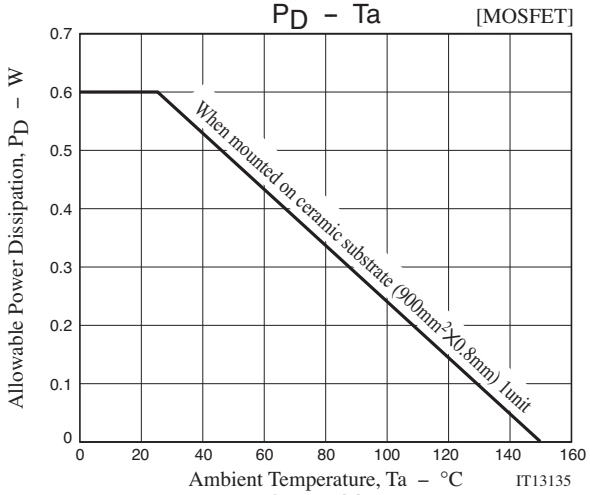

SW Time – ID [MOSFET]
VDD=15V
VGS=10V
Switching Time, SW Time – ns
Drain Current, ID – A
IT13113
td(off)
tf
td(on)
tr

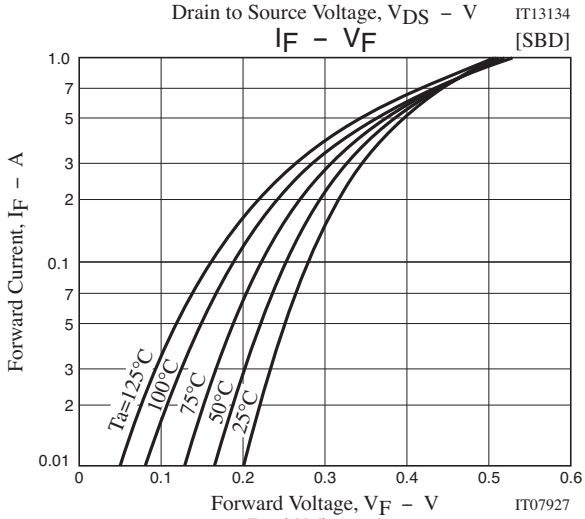

Ciss, Coss, Crss – VDS [MOSFET]
f=1MHz
Ciss, Coss, Crss – pF
Drain to Source Voltage, VDS – V
IT13114
Ciss
Coss
Crss

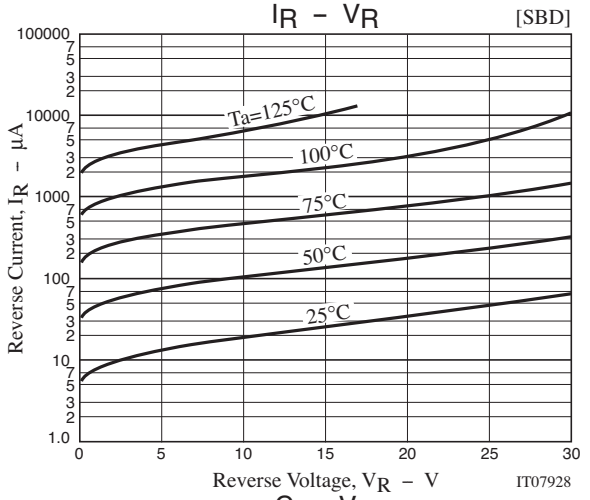
SCH2825

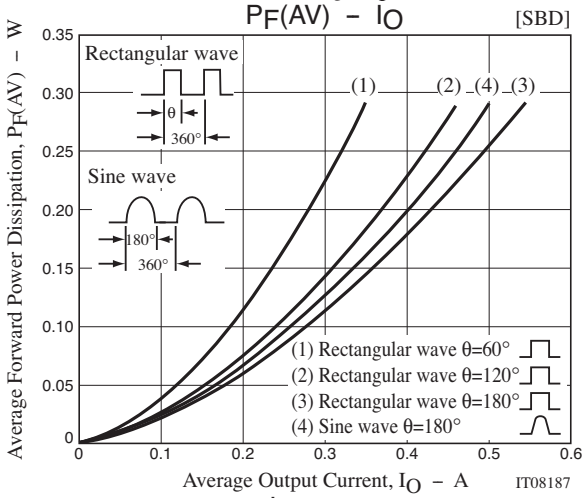

VGS – Qg
[MOSFET]
VDS=10V
ID=1.6A
Gate to Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT13133

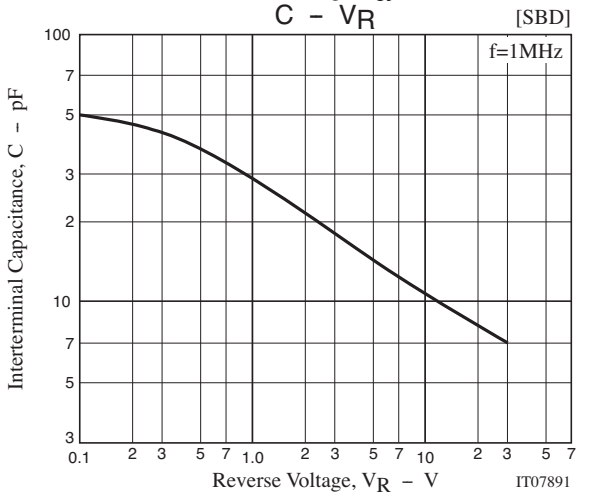

A S O
[MOSFET]
IDP=6.4A(PW≤10μs)
ID=1.6A
100μs
1ms
10ms
100ms
DC operation (Ta=25°C)
Operation in this
area is limited by RDS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate (900mm2×0.8mm) 1unit
Drain Current, ID – A
Drain to Source Voltage, VDS – V
IT13134

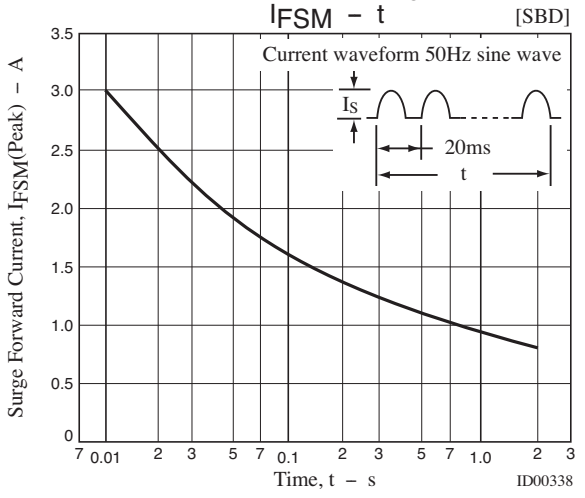

PD – Ta
[MOSFET]
When mounted on ceramic substrate (900mm2×0.8mm) 1unit
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT13135


IF – VF
[SBD]
Ta=125°C
100°C
75°C
50°C
25°C
Forward Current, IF – A
Forward Voltage, VF – V
IT07927


IR – VR
[SBD]
Ta=125°C
100°C
75°C
50°C
25°C
Reverse Current, IR – μA
Reverse Voltage, VR – V
IT07928


PF(AV) – IO
[SBD]
Rectangular wave
θ
360°
Sine wave
180°
360°
(1)
(2)
(4)
(3)
(1) Rectangular wave θ=60°
(2) Rectangular wave θ=120°
(3) Rectangular wave θ=180°
(4) Sine wave θ=180°
Average Forward Power Dissipation, PF(AV) – W
Average Output Current, IO – A
IT08187

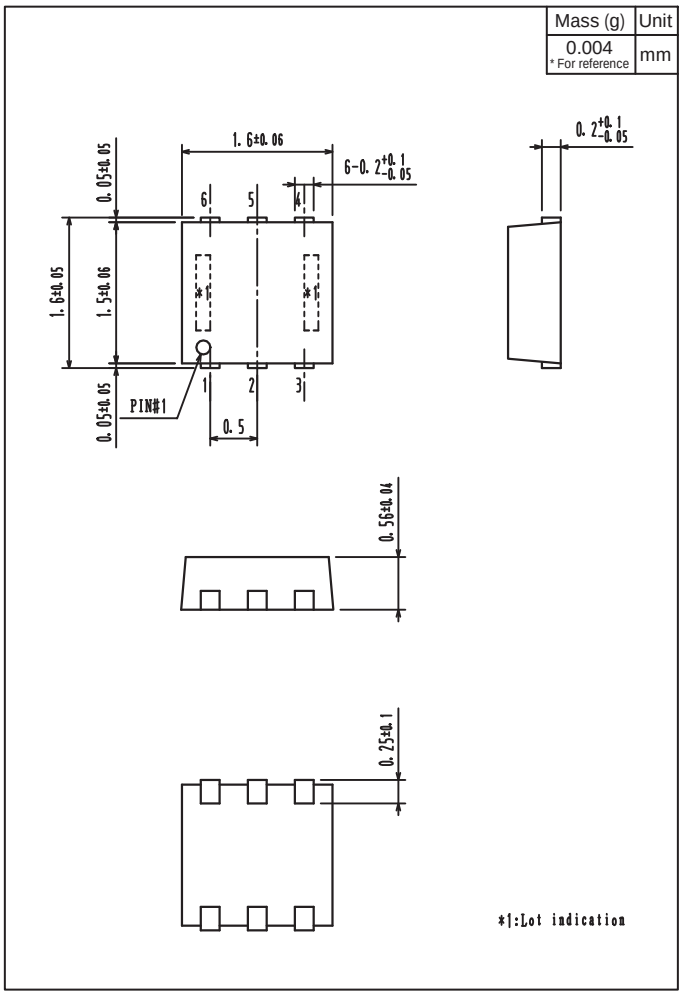

C – VR
[SBD]
f=1MHz
Interterminal Capacitance, C – pF
Reverse Voltage, VR – V
IT07891


IFSM – t
[SBD]
Current waveform 50Hz sine wave
IS
20ms
t
Surge Forward Current, IFSM(Peak) – A
Time, t – s
ID00338

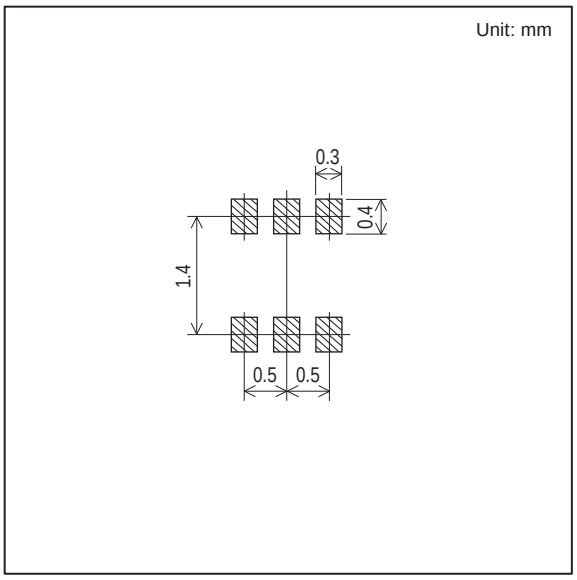
SCH2825

Outline Drawing

SCH2825-TL-E



Land Pattern Example



Note on usage : Since the SCH2825 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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