Ordering number : ENA1892

SANYO Semiconductors
DATA SHEET

N-Channel and P-Channel Silicon MOSFETs

ECH8673 — General-Purpose Switching Device Applications

Features

- ON-resistance Nch: $R_{DS}(on)1$=65mΩ(typ.), Pch: ON-resistance $R_{DS}(on)1$=125mΩ(typ.)
- 4V drive
- Halogen free compliance
- Nch+Pch MOSFET

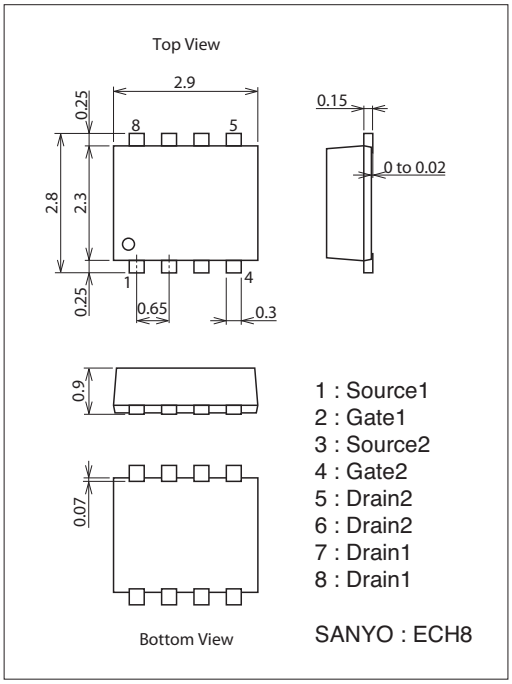
Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain-to-Source Voltage	V_{DSS}		40	−40	V
Gate-to-Source Voltage	V_{GSS}		±20	±20	V
Drain Current (DC)	I_D		3.5	−2.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	30	−30	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (1200mm²×0.8mm) 1unit	1.3		W
Total Dissipation	P_T	When mounted on ceramic substrate (1200mm²×0.8mm)	1.5		W
Channel Temperature	Tch		150		°C
Storage Temperature	Tstg		−55 to +150		°C

Package Dimensions

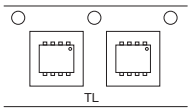
unit : mm (typ)
7011A-001



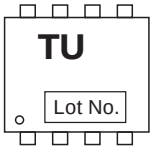
Product & Package Information

- Package : ECH8
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

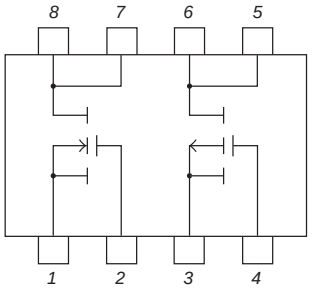
Packing Type : TL



Marking



Electrical Connection

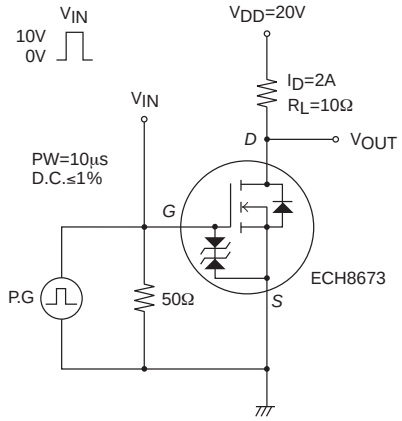


Electrical Characteristics at Ta=25°C

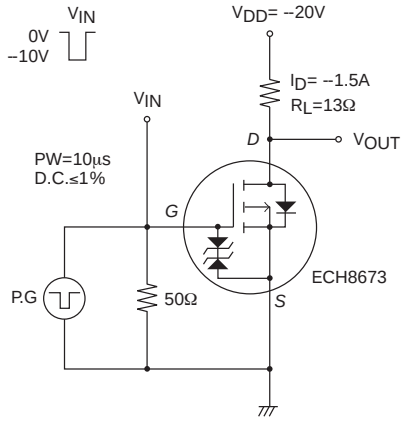
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	40			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=2A		1.7		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=2A, V_{GS}=10V		65	85	mΩ
	R_{DS}(on)2	I_D=1A, V_{GS}=4.5V		105	147	mΩ
	R_{DS}(on)3	I_D=1A, V_{GS}=4V		125	175	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		230		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		36		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		9.9		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		5.8		ns
Rise Time	t_r	See specified Test Circuit.		10.6		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		18.5		ns
Fall Time	t_f	See specified Test Circuit.		9.8		ns
Total Gate Charge	Qg	V_{DS}=20V, V_{GS}=10V, I_D=3.5A		5.3		nC
Gate-to-Source Charge	Qgs	V_{DS}=20V, V_{GS}=10V, I_D=3.5A		1.1		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=20V, V_{GS}=10V, I_D=3.5A		1.1		nC
Diode Forward Voltage	V_{SD}	I_S=3.5A, V_{GS}=0V		0.84	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=−1mA, V_{GS}=0V	−40			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−40V, 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=−1.5A		2.7		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−1.5A, V_{GS}=−10V		125	163	mΩ
	R_{DS}(on)2	I_D=−0.75A, V_{GS}=−4.5V		190	266	mΩ
	R_{DS}(on)3	I_D=−0.75A, V_{GS}=−4V		215	301	mΩ
Input Capacitance	Ciss	V_{DS}=−20V, f=1MHz		198		pF
Output Capacitance	Coss	V_{DS}=−20V, f=1MHz		36		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−20V, f=1MHz		8.1		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		5.8		ns
Rise Time	t_r	See specified Test Circuit.		10.3		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		27.6		ns
Fall Time	t_f	See specified Test Circuit.		17.3		ns
Total Gate Charge	Qg	V_{DS}=−20V, V_{GS}=−10V, I_D=−2.5A		5.9		nC
Gate-to-Source Charge	Qgs	V_{DS}=−20V, V_{GS}=−10V, I_D=−2.5A		0.84		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−20V, V_{GS}=−10V, I_D=−2.5A		1.3		nC
Diode Forward Voltage	V_{SD}	I_S=−2.5A, V_{GS}=0V		−0.87	−1.2	V

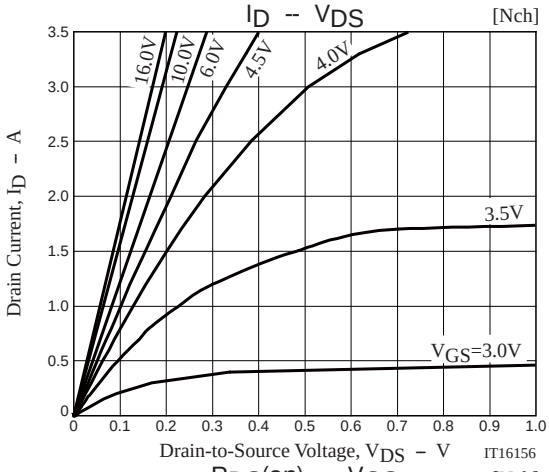
Switching Time Test Circuit

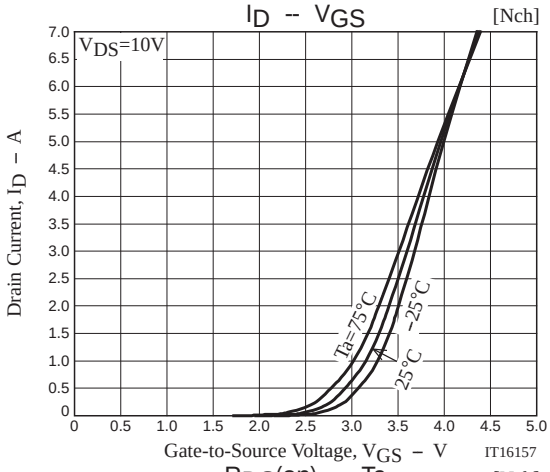
[N-channel]

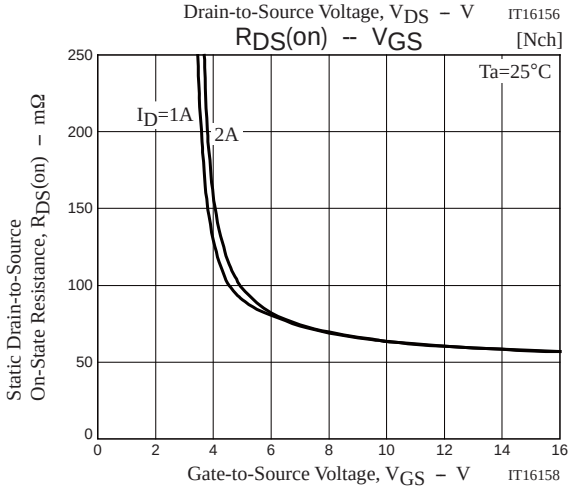


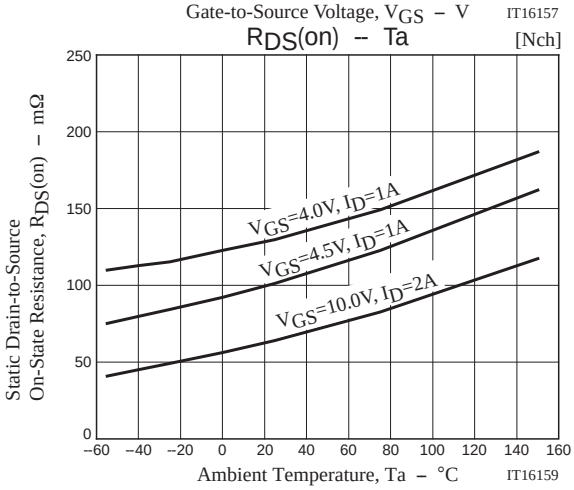
[P-channel]

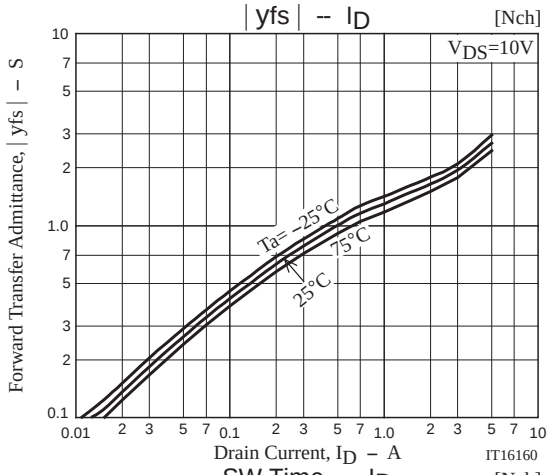


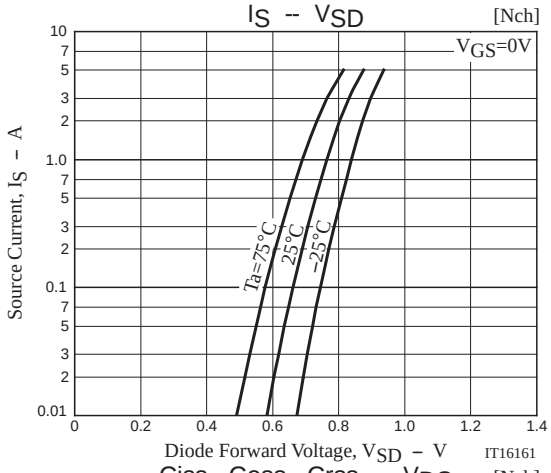


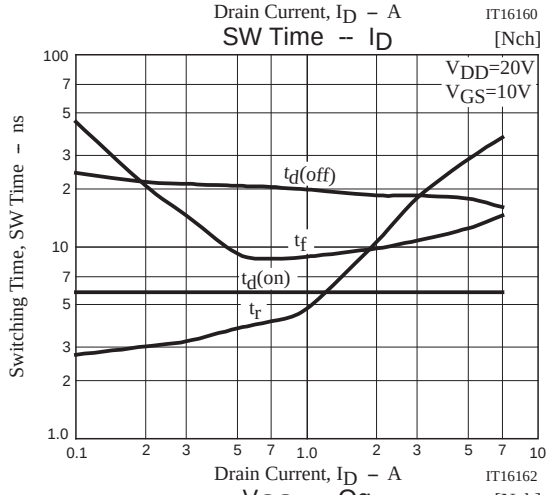


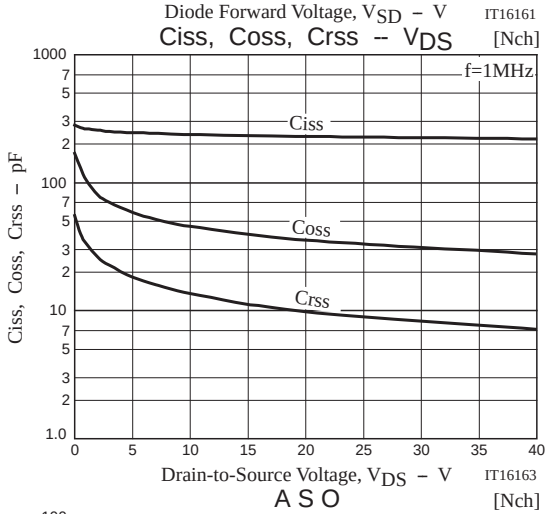


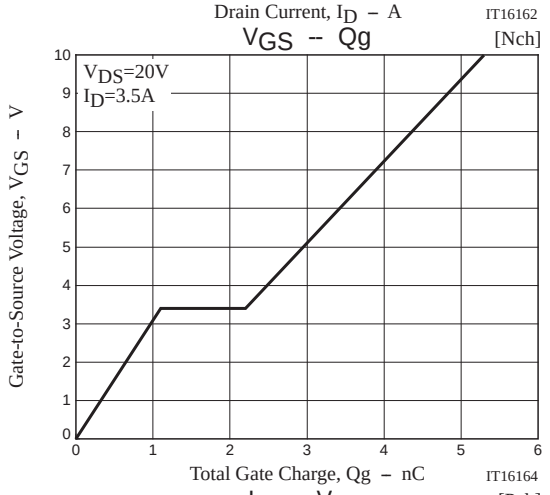


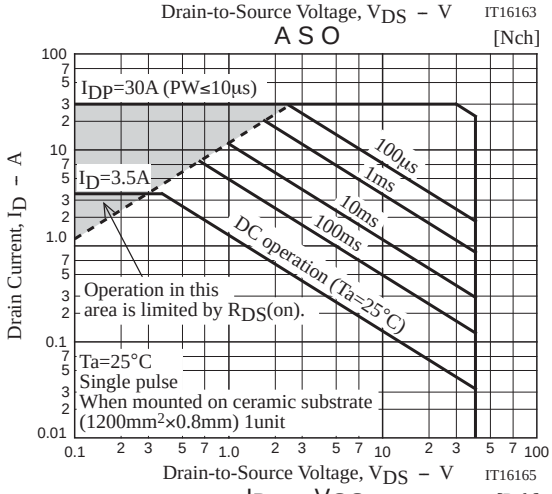


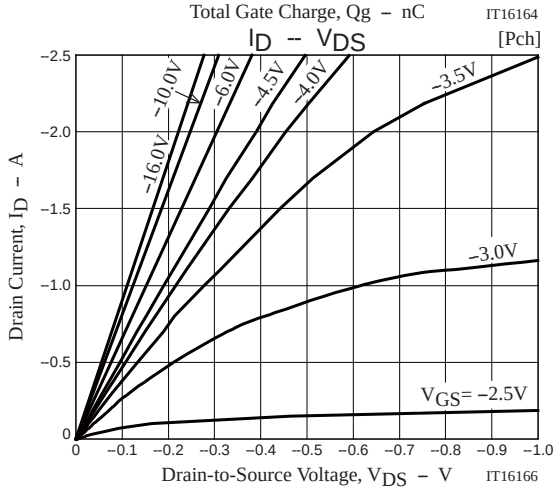


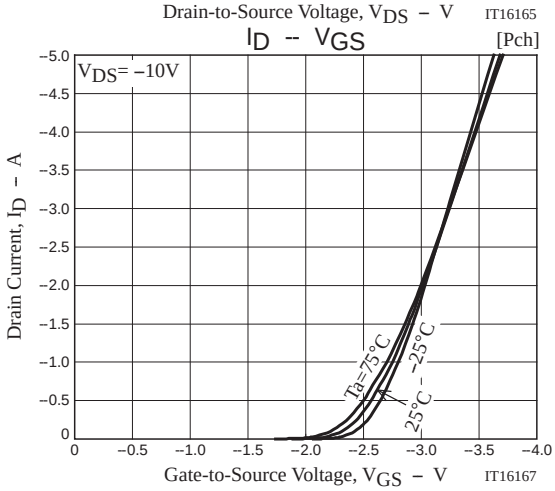


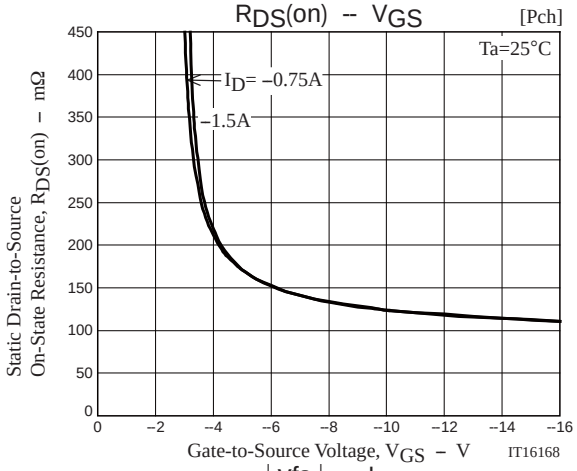


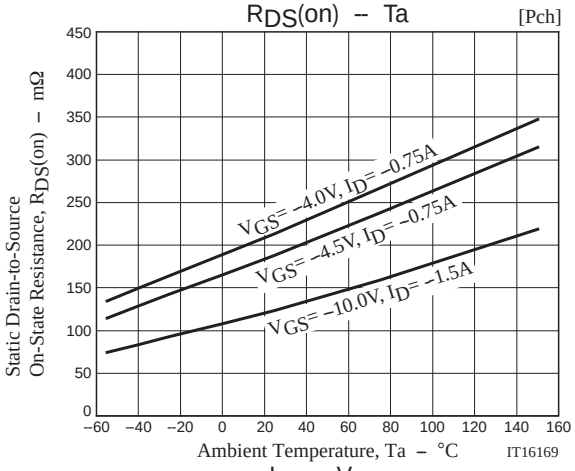


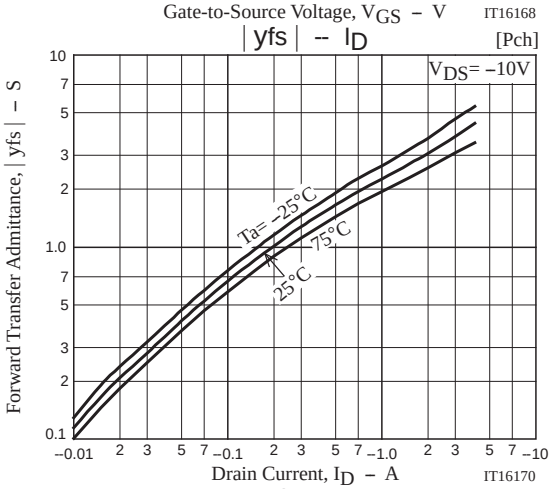


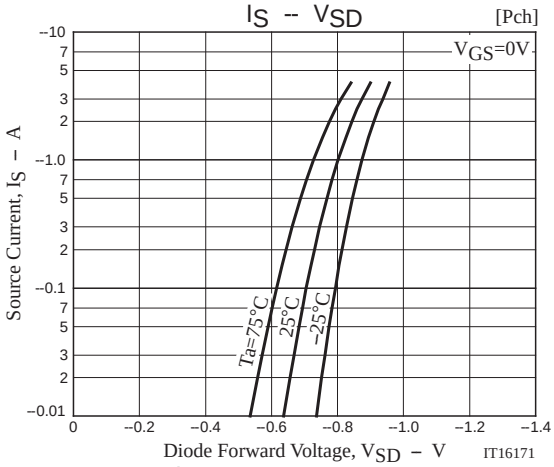


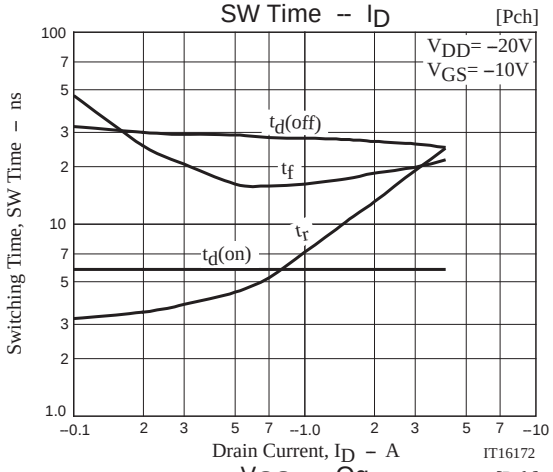


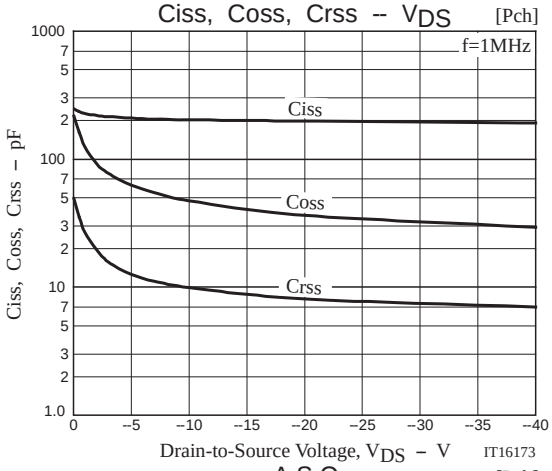


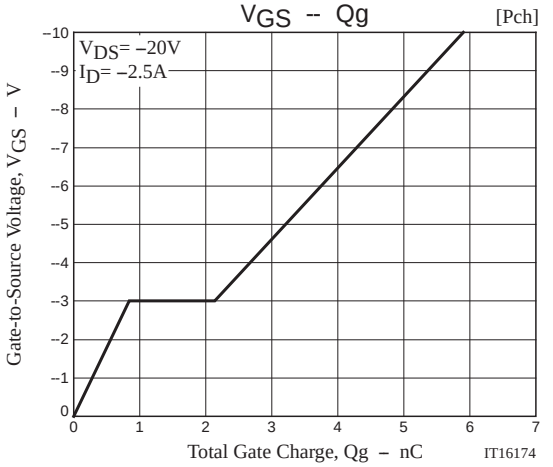


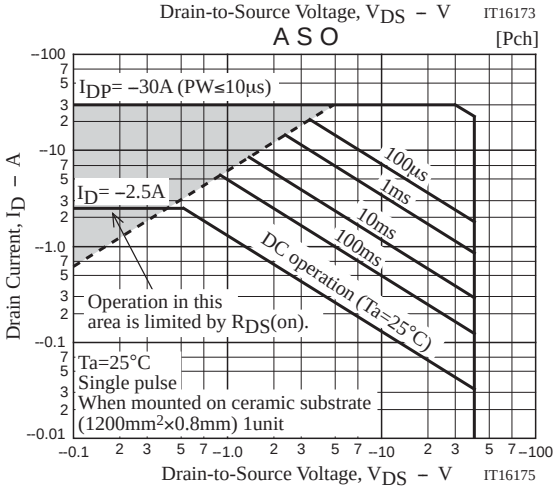


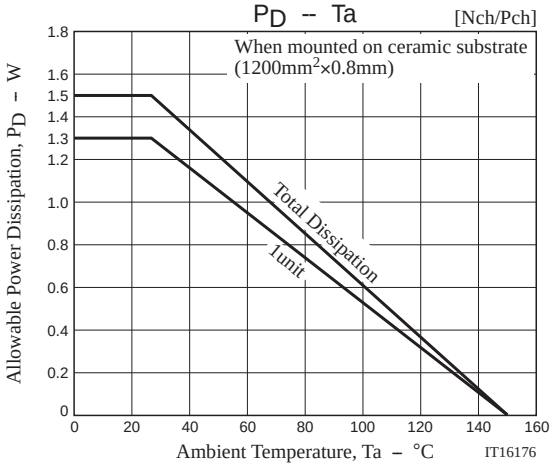












Note on usage : Since the ECH8673 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.