

ECH8673 — N-Channel and P-Channel Silicon MOSFETs

General-Purpose Switching Device Applications

Features

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

Specifications

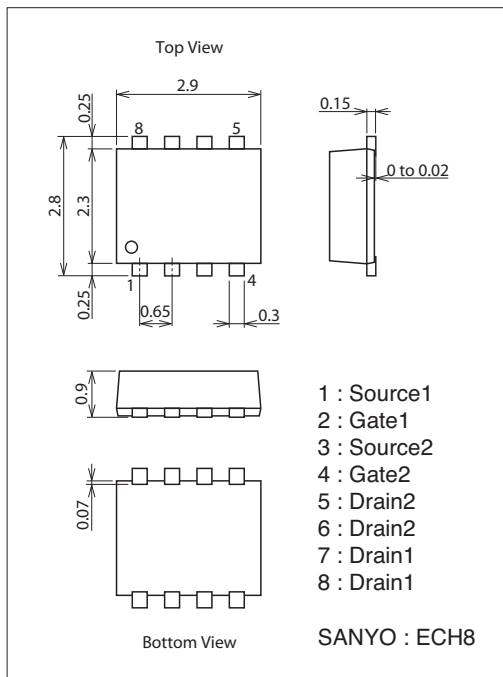
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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}	$PW \leq 10\mu\text{s}$, duty cycles $\leq 1\%$	30	-30	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (1200mm ² ×0.8mm) 1unit	1.3		W
Total Dissipation	P_T	When mounted on ceramic substrate (1200mm ² ×0.8mm)	1.5		W
Channel Temperature	T_{ch}		150		$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150		$^\circ\text{C}$

Package Dimensions

unit : mm (typ)

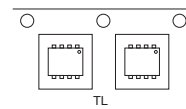
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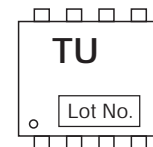
Product & Package Information

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

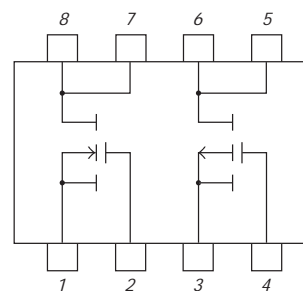
Packing Type : TL



Marking



Electrical Connection



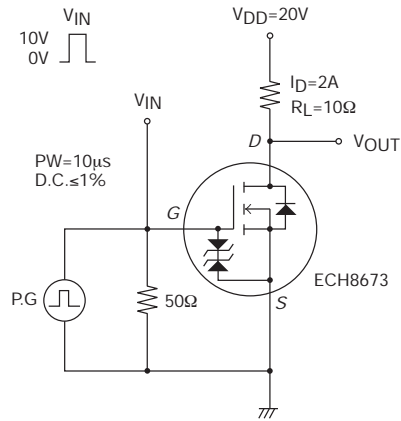
ECH8673

Electrical Characteristics at Ta=25°C

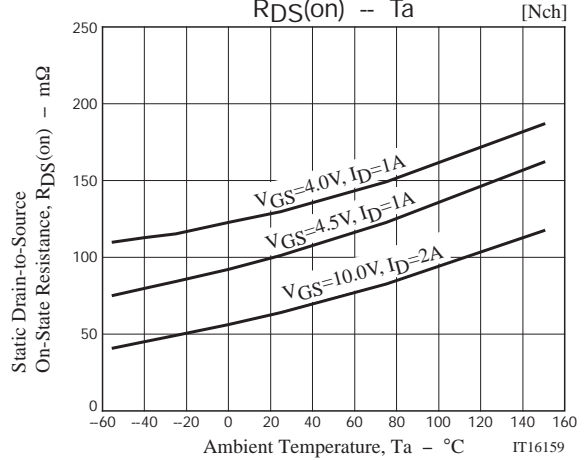
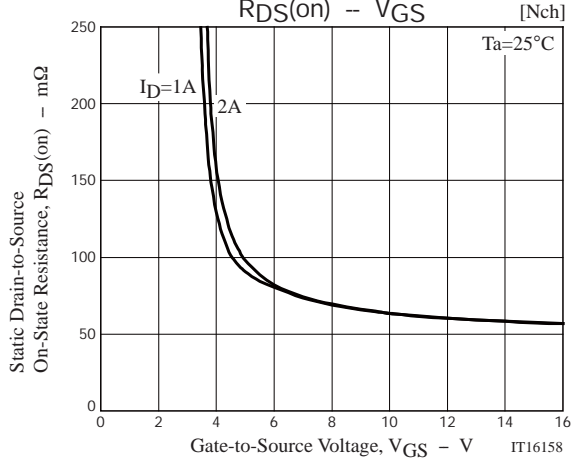
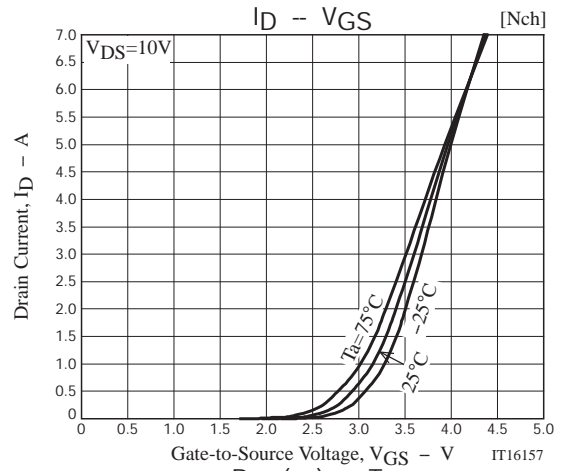
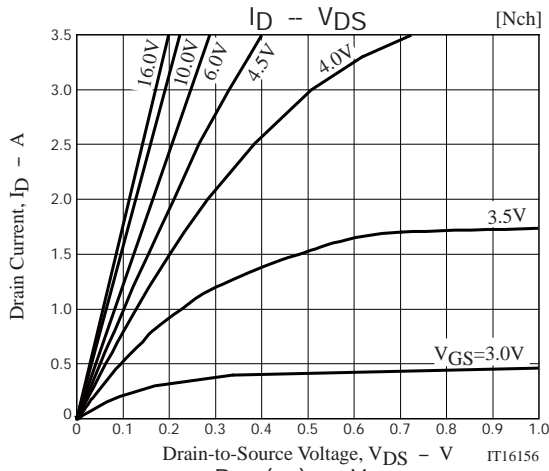
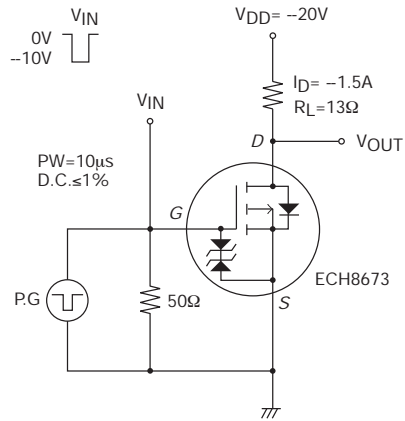
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	40			V
Zero-Gate Voltage Drain Current	IDSS	VDS=40V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=2A		1.7		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=2A, VGS=10V		65	85	mΩ
	RDS(on)2	ID=1A, VGS=4.5V		105	147	mΩ
	RDS(on)3	ID=1A, VGS=4V		125	175	mΩ
Input Capacitance	Ciss	VDS=20V, f=1MHz		230		pF
Output Capacitance	Coss	VDS=20V, f=1MHz		36		pF
Reverse Transfer Capacitance	Crss	VDS=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	VDS=20V, VGS=10V, ID=3.5A		5.3		nC
Gate-to-Source Charge	Qgs	VDS=20V, VGS=10V, ID=3.5A		1.1		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=20V, VGS=10V, ID=3.5A		1.1		nC
Diode Forward Voltage	VSD	IS=3.5A, VGS=0V		0.84	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-40			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-40V, VGS=0V			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-1.2		-2.6	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-1.5A		2.7		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-1.5A, VGS=-10V		125	163	mΩ
	RDS(on)2	ID=-0.75A, VGS=-4.5V		190	266	mΩ
	RDS(on)3	ID=-0.75A, VGS=-4V		215	301	mΩ
Input Capacitance	Ciss	VDS=-20V, f=1MHz		198		pF
Output Capacitance	Coss	VDS=-20V, f=1MHz		36		pF
Reverse Transfer Capacitance	Crss	VDS=-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	VDS=-20V, VGS=-10V, ID=-2.5A		5.9		nC
Gate-to-Source Charge	Qgs	VDS=-20V, VGS=-10V, ID=-2.5A		0.84		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=-20V, VGS=-10V, ID=-2.5A		1.3		nC
Diode Forward Voltage	VSD	IS=-2.5A, VGS=0V		-0.87	-1.2	V

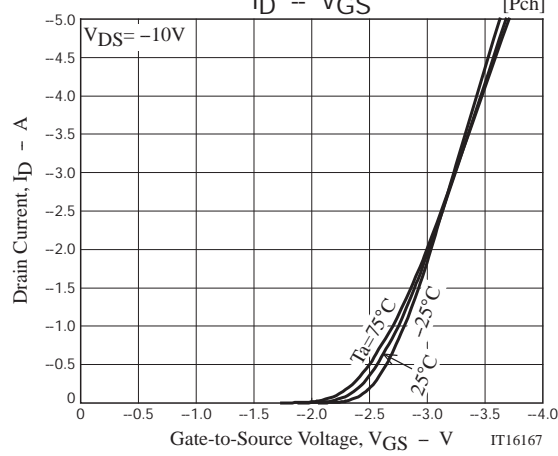
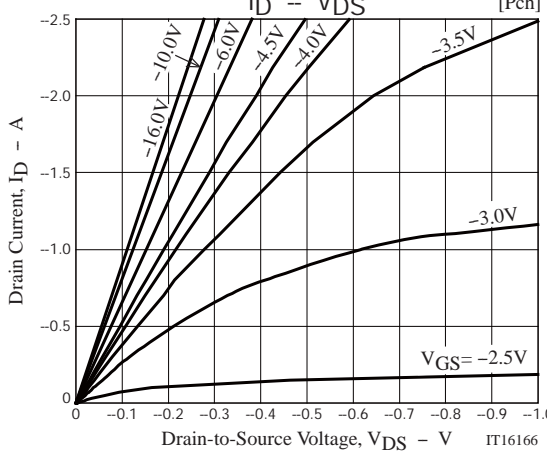
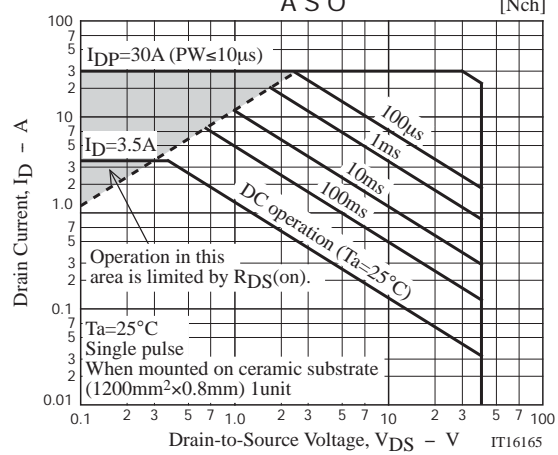
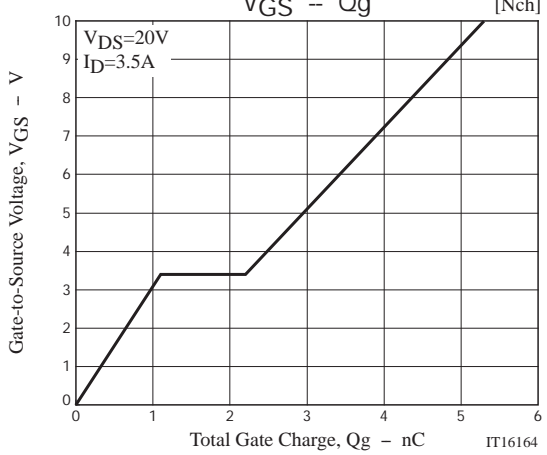
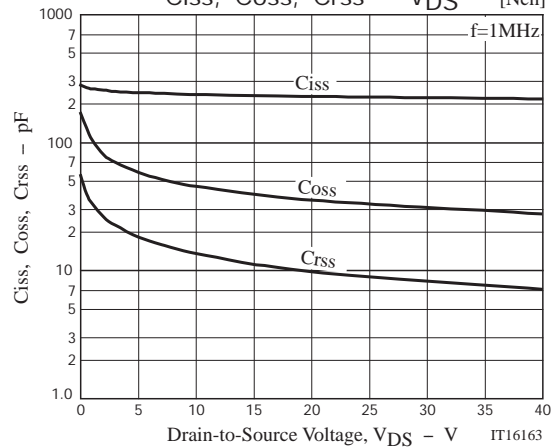
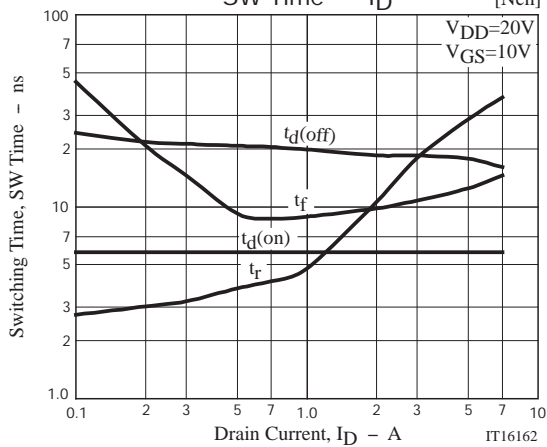
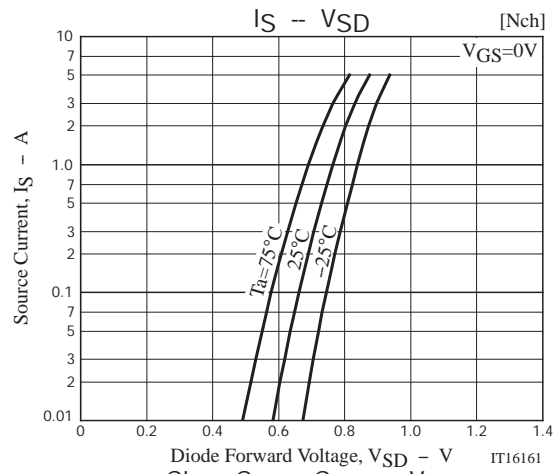
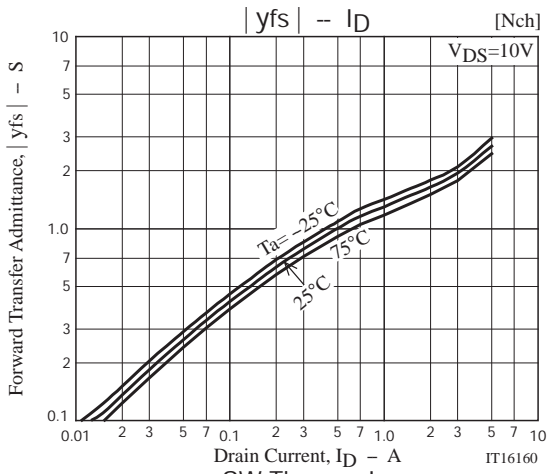
Switching Time Test Circuit

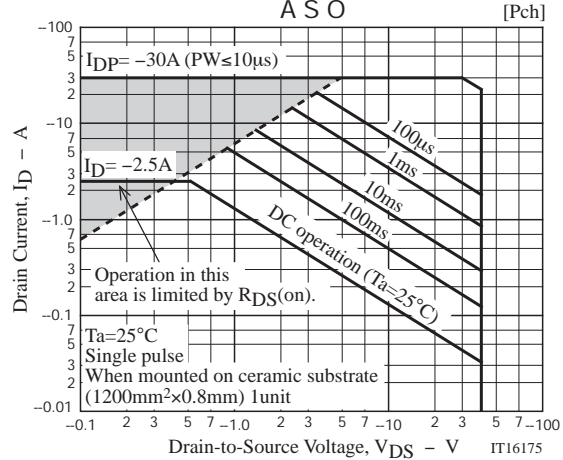
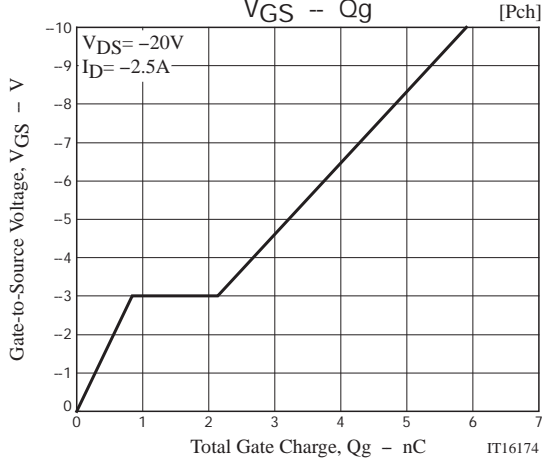
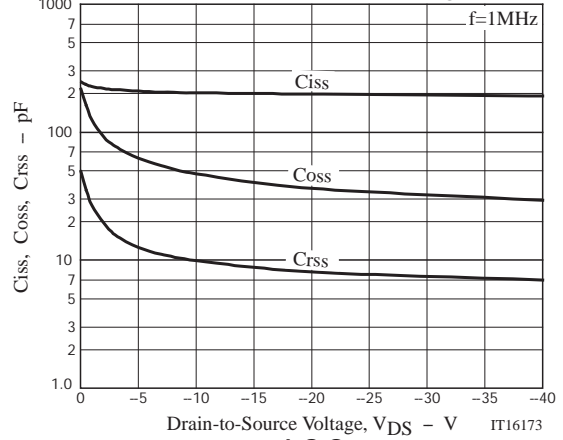
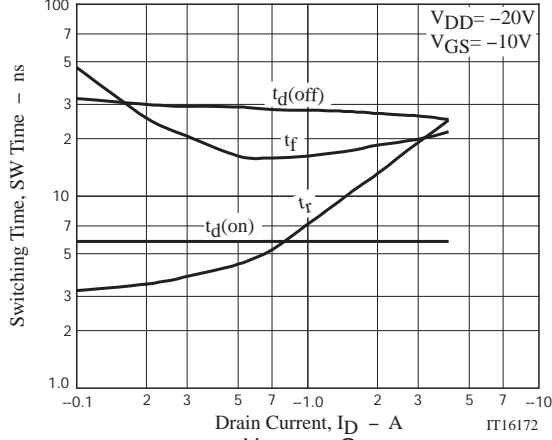
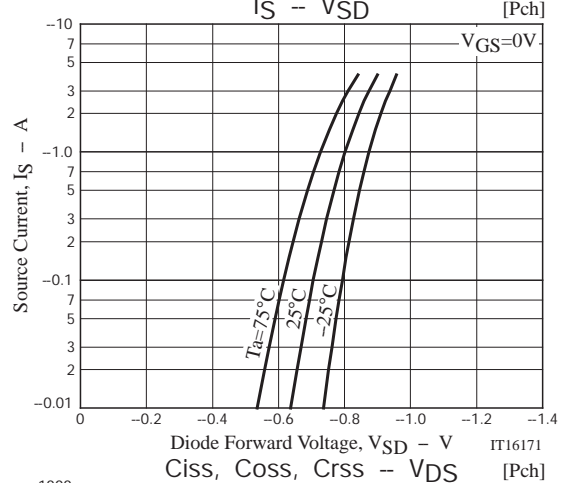
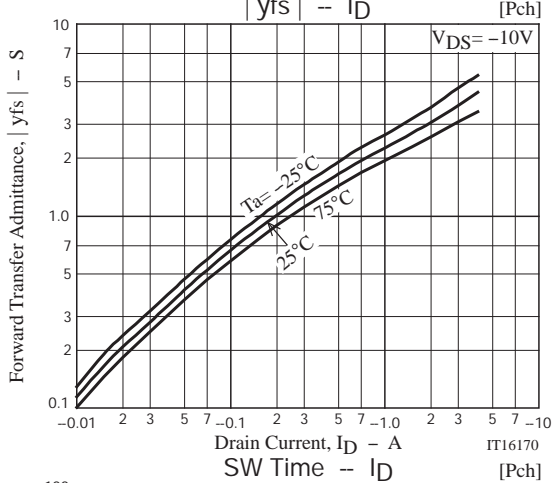
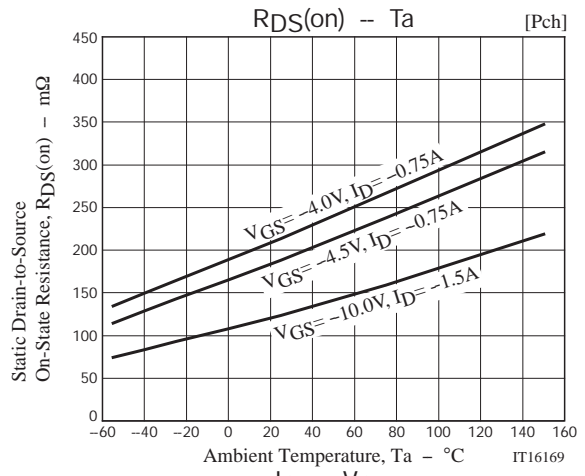
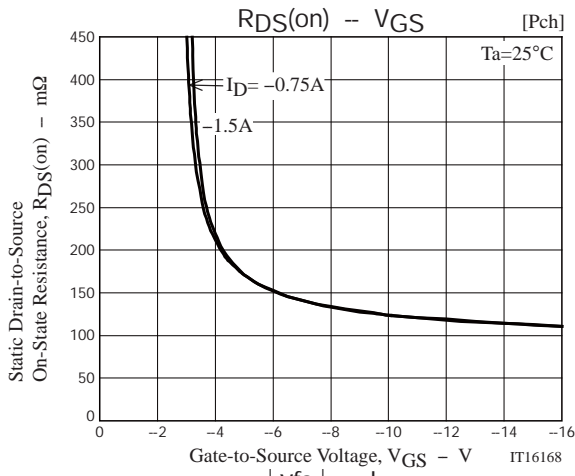
[N-channel]

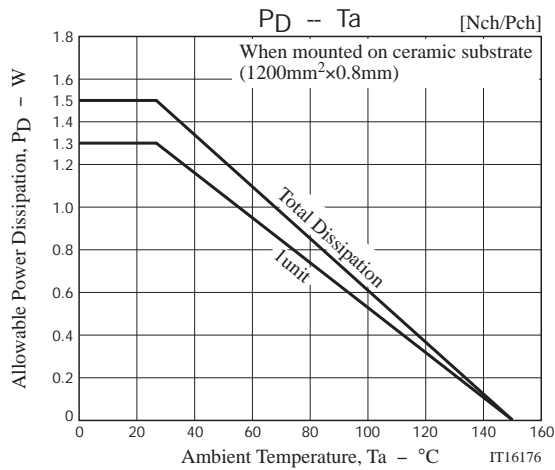


[P-channel]









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

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