

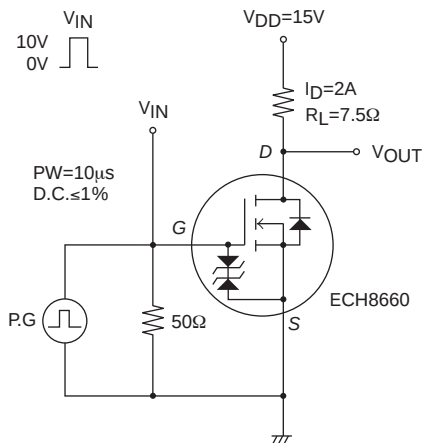
ECH8660

Electrical Characteristics at Ta=25°C

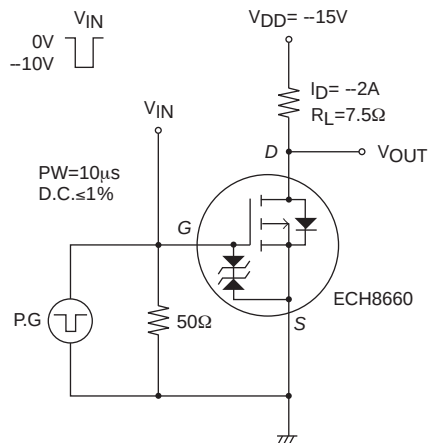
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=2A	1	1.66		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=2A, VGS=10V		45	59	mΩ
	RDS(on)2	ID=1A, VGS=4.5V		85	119	mΩ
	RDS(on)3	ID=1A, VGS=4V		110	155	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		240		pF
Output Capacitance	Coss	VDS=10V, f=1MHz		45		pF
Reverse Transfer Capacitance	Crss	VDS=10V, f=1MHz		30		pF
Turn-ON Delay Time	tD(on)	See specified Test Circuit.		6.2		ns
Rise Time	tr	See specified Test Circuit.		11		ns
Turn-OFF Delay Time	tD(off)	See specified Test Circuit.		17		ns
Fall Time	tf	See specified Test Circuit.		7.5		ns
Total Gate Charge	Qg	VDS=10V, VGS=10V, ID=4.5A		4.4		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=10V, ID=4.5A		1.1		nC
Gate-to-Drain “Miller” Charge	Qgd	VDS=10V, VGS=10V, ID=4.5A		0.64		nC
Diode Forward Voltage	VSD	IS=4.5A, VGS=0V		0.84	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=−1mA, VGS=0V	−30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=−30V, 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		−2.3	V
Forward Transfer Admittance	yfs	VDS=−10V, ID=−2A	2.5	4.2		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=−2A, VGS=−10V		45	59	mΩ
	RDS(on)2	ID=−1A, VGS=−4.5V		71	100	mΩ
	RDS(on)3	ID=−1A, VGS=−4V		82	115	mΩ
Input Capacitance	Ciss	VDS=−10V, f=1MHz		430		pF
Output Capacitance	Coss	VDS=−10V, f=1MHz		105		pF
Reverse Transfer Capacitance	Crss	VDS=−10V, f=1MHz		75		pF
Turn-ON Delay Time	tD(on)	See specified Test Circuit.		7.5		ns
Rise Time	tr	See specified Test Circuit.		26		ns
Turn-OFF Delay Time	tD(off)	See specified Test Circuit.		45		ns
Fall Time	tf	See specified Test Circuit.		35		ns
Total Gate Charge	Qg	VDS=−10V, VGS=−10V, ID=−4.5A		10		nC
Gate-to-Source Charge	Qgs	VDS=−10V, VGS=−10V, ID=−4.5A		2.0		nC
Gate-to-Drain “Miller” Charge	Qgd	VDS=−10V, VGS=−10V, ID=−4.5A		2.5		nC
Diode Forward Voltage	VSD	IS=−4.5A, VGS=0V		−0.85	−1.2	V

Switching Time Test Circuit

[N-channel]

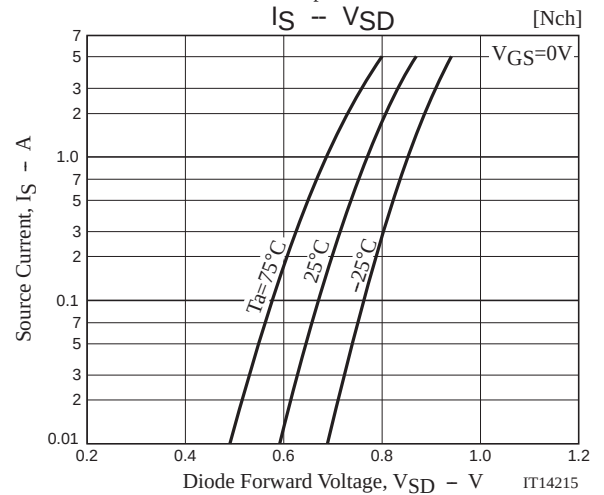
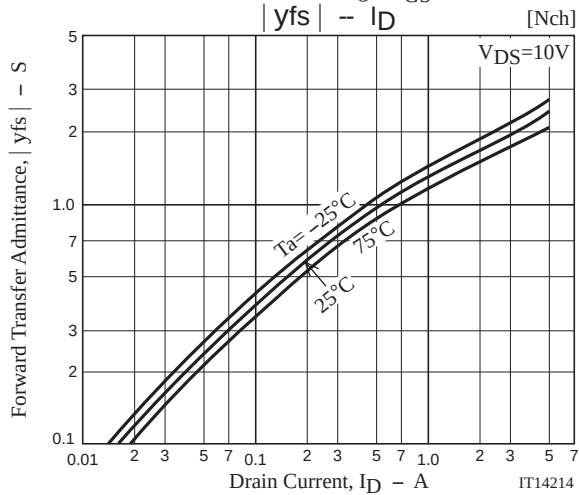
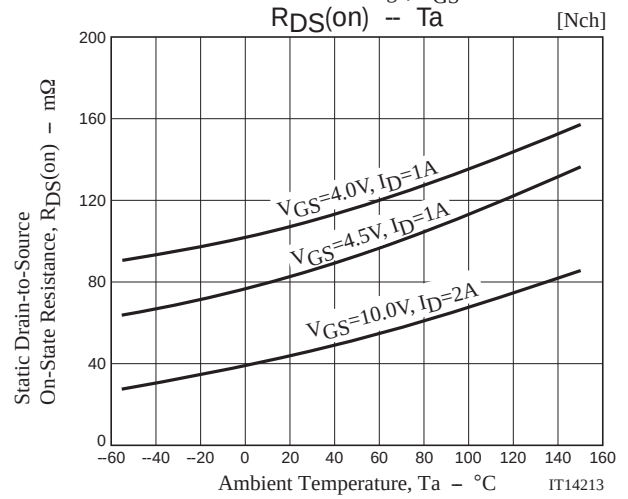
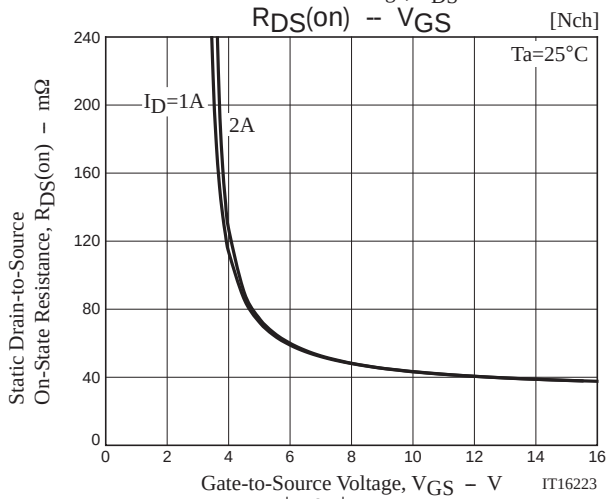
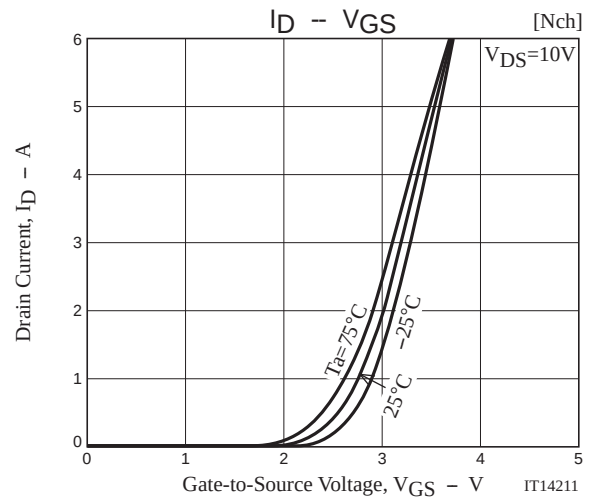
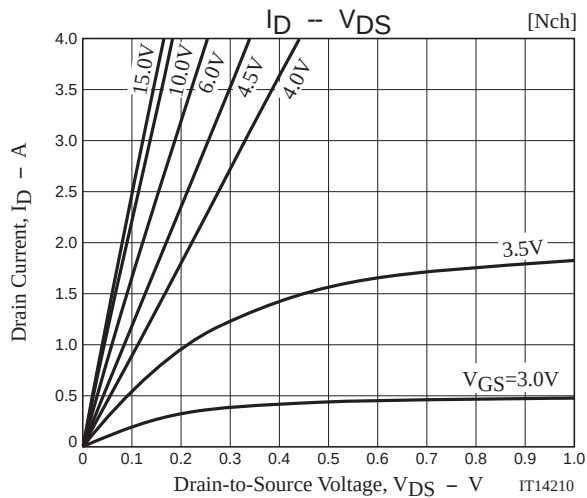


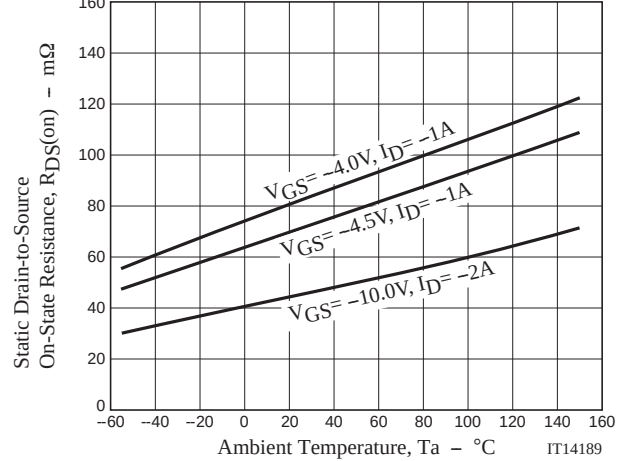
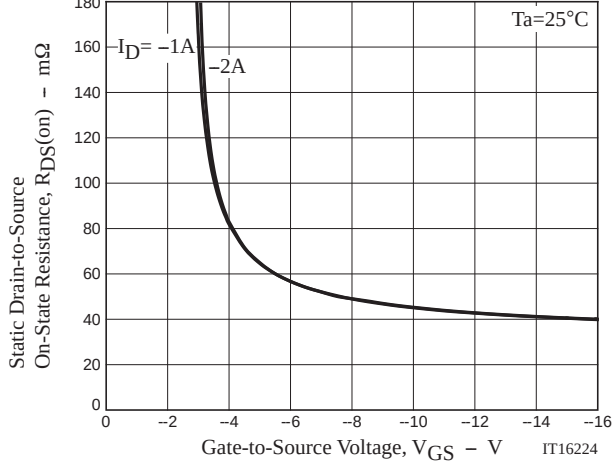
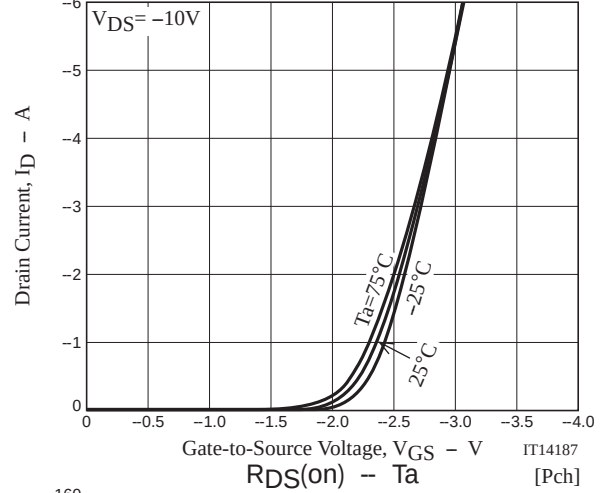
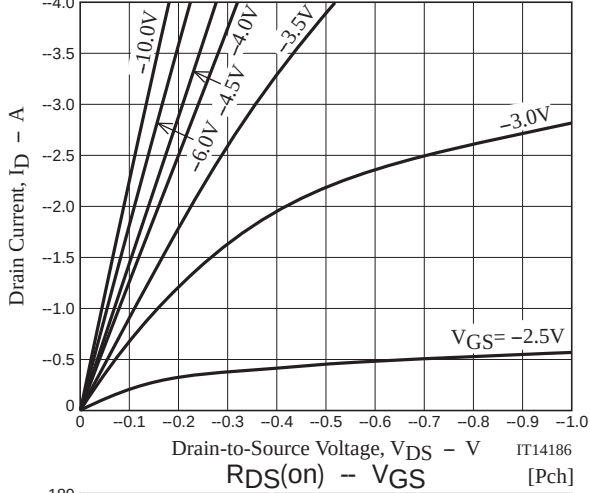
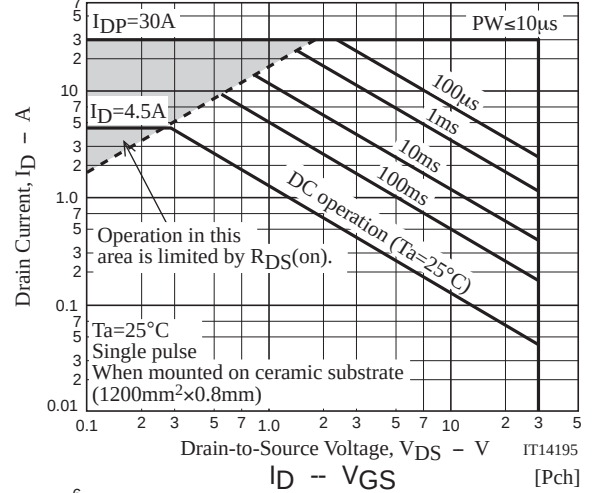
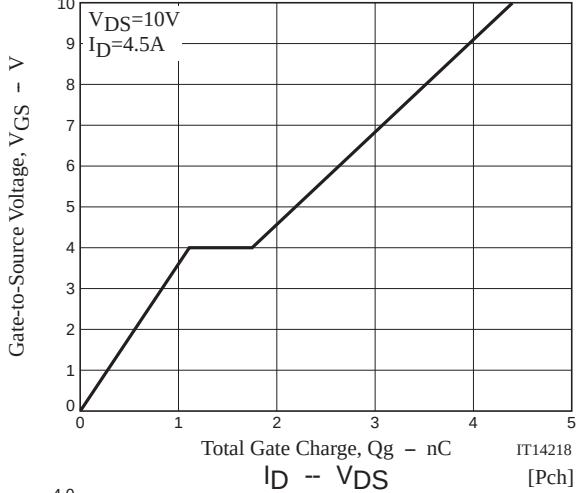
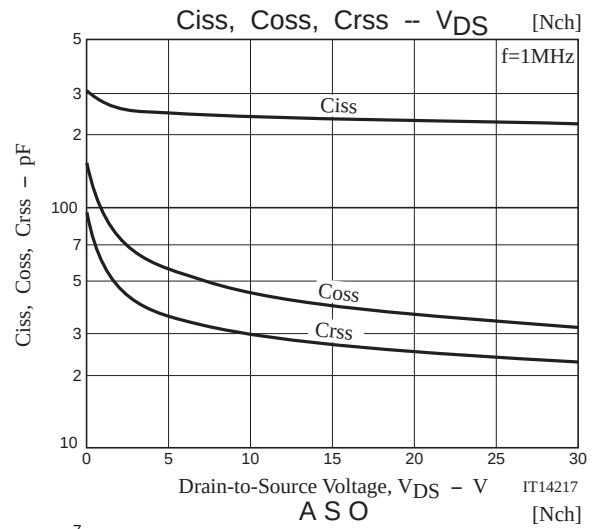
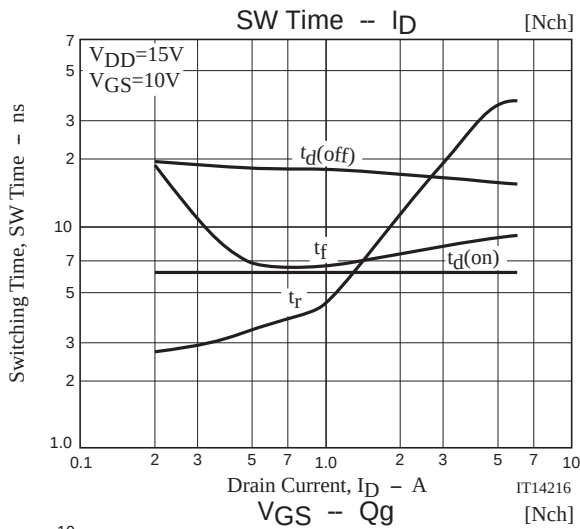
[P-channel]

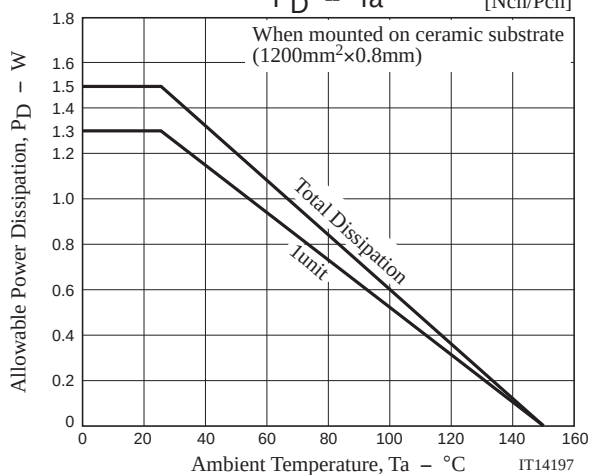
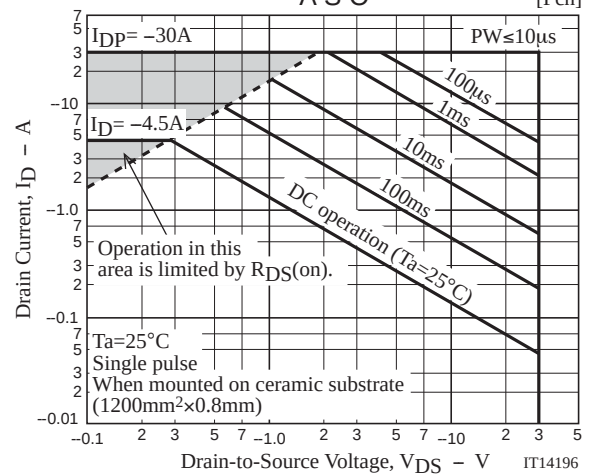
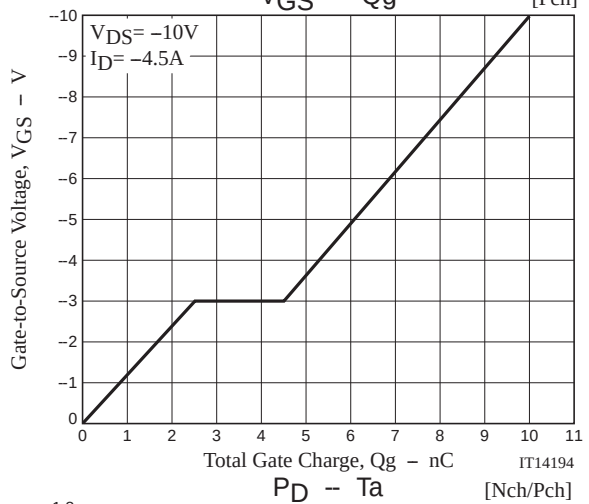
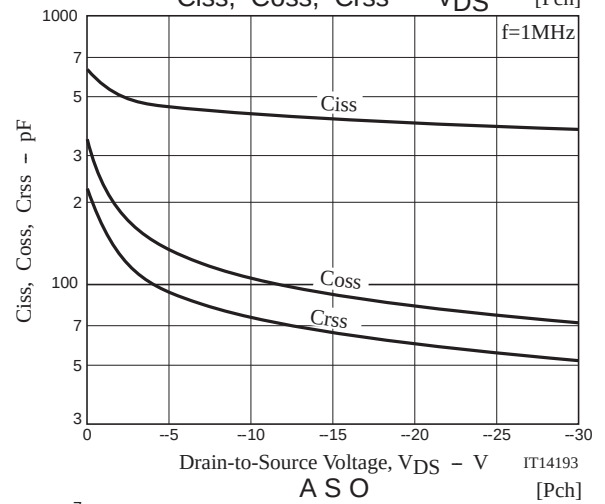
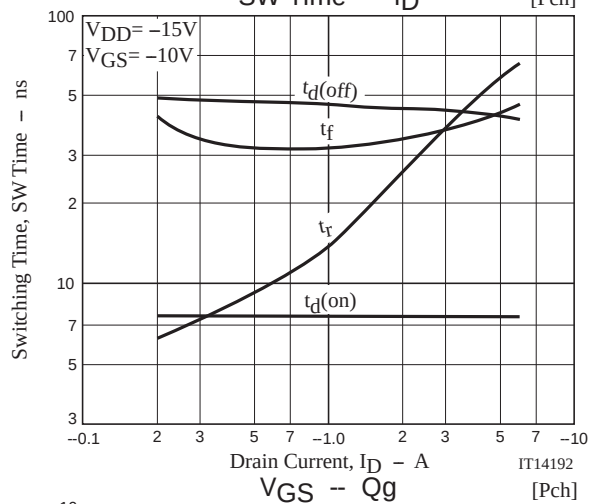
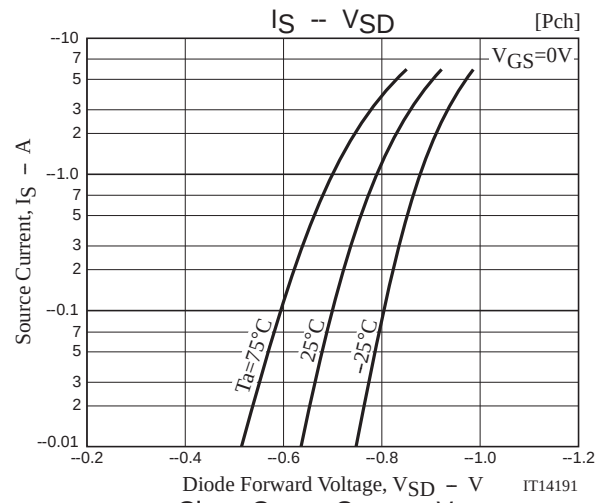
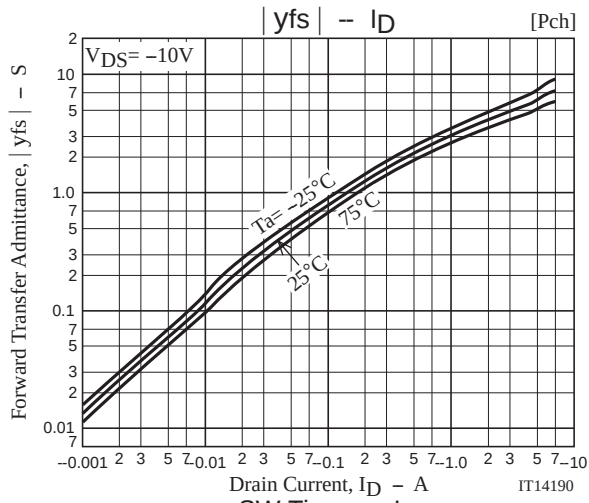


Ordering Information

Device	Package	Shipping	memo
ECH8660-TL-H	ECH8	3,000pcs./reel	Pb-Free and Halogen Free







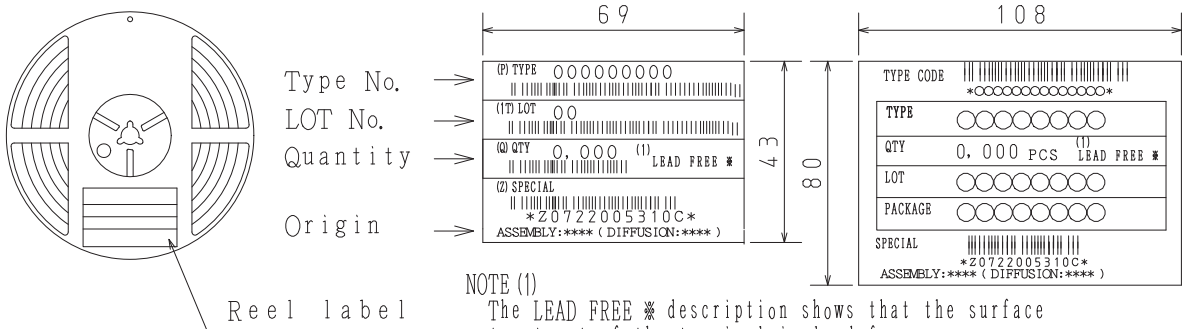
Embossed Taping Specification

ECH8660-TL-H

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
ECH8	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

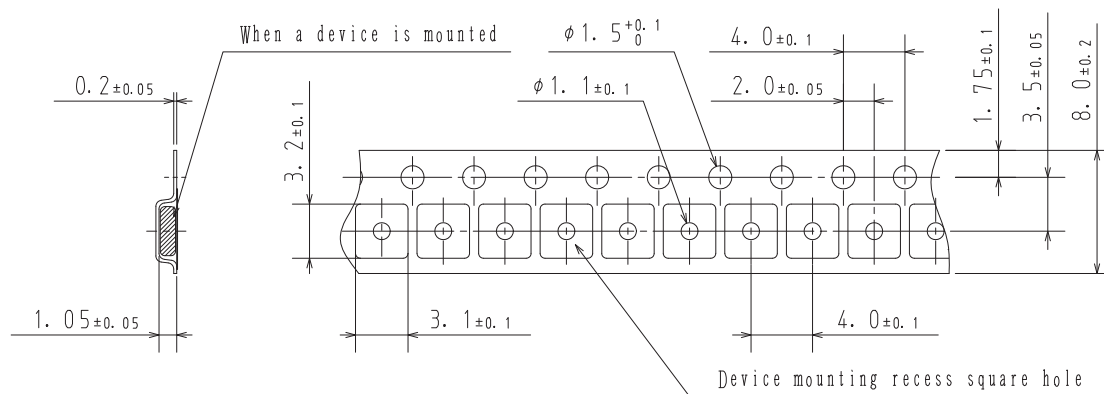
Packing method



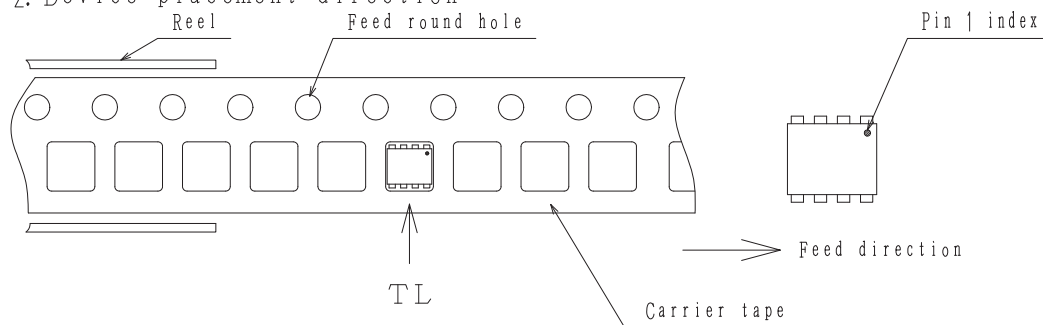
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)

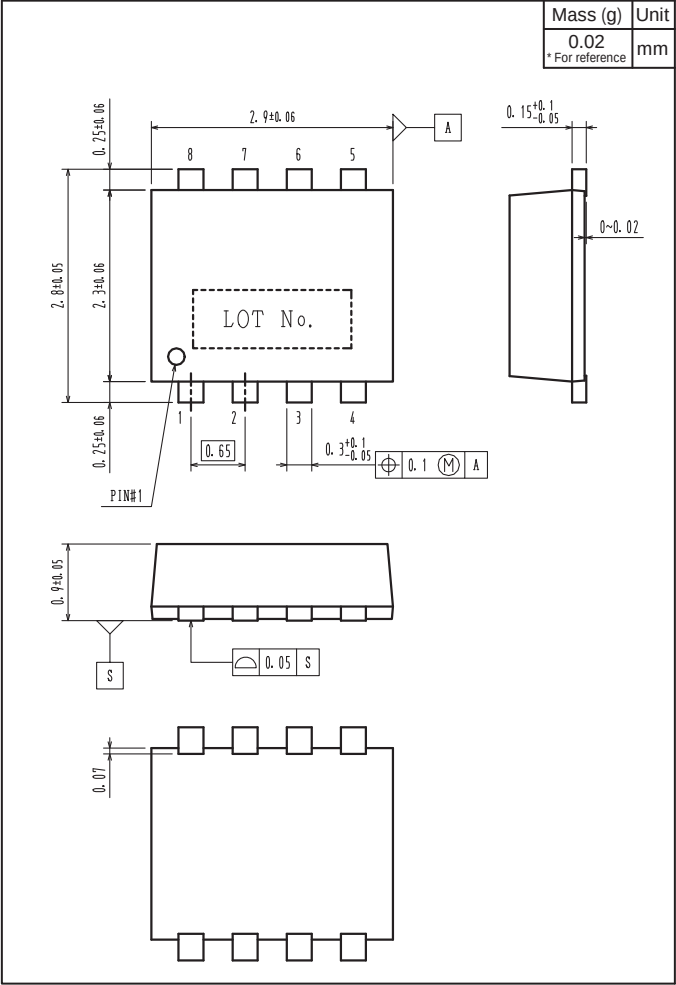


2-2. Device placement direction

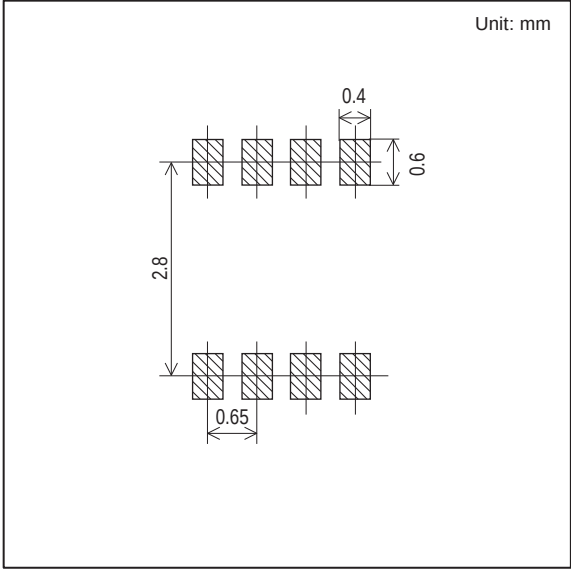


Those with pin 1 index on the feed hole side.....TL

Outline Drawing
ECH8660-TL-H



Land Pattern Example



Note on usage : Since the ECH8660 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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