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CPH3456

N-Channel Power MOSFET 20V, 3.5A, 71mΩ, Single CPH3

Features

- ON-resistance $R_{DS(on)1}=54m\Omega$ (typ.)
- 1.8V drive
- Halogen free compliance

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		20	V
Gate-to-Source Voltage	V_{GS}		± 12	V
Drain Current (DC)	I_D		3.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	14	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate ($900mm^2 \times 0.8mm$)	1.0	W
Channel Temperature	T_{ch}		150	$^{\circ}C$
Storage Temperature	T_{stg}		-55 to +150	$^{\circ}C$

This product is designed to "ESD immunity < 200V**", so please take care when handling.

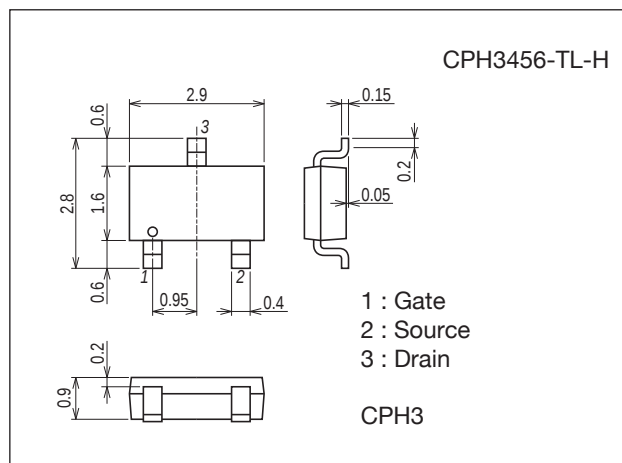
* Machine Model

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)

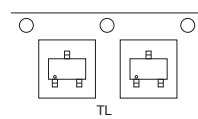
7015A-004



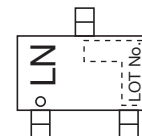
Product & Package Information

- Package : CPH3
- JEITA, JEDEC : SC-59, TO-236, SOT-23
- Minimum Packing Quantity : 3,000 pcs./reel

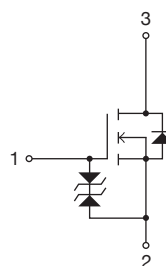
Packing Type: TL



Marking



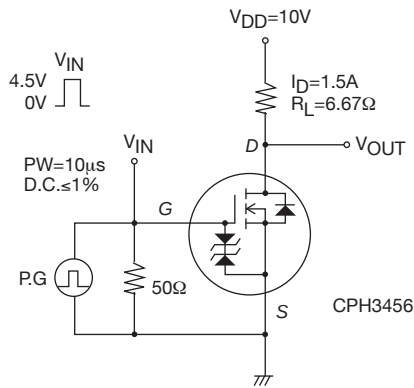
Electrical Connection



Electrical Characteristics at Ta=25°C

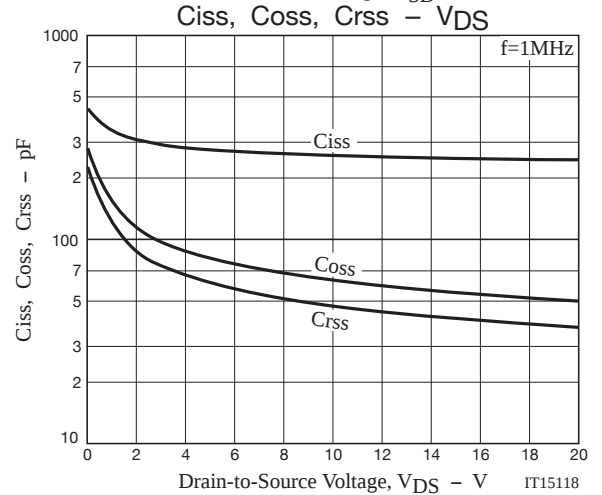
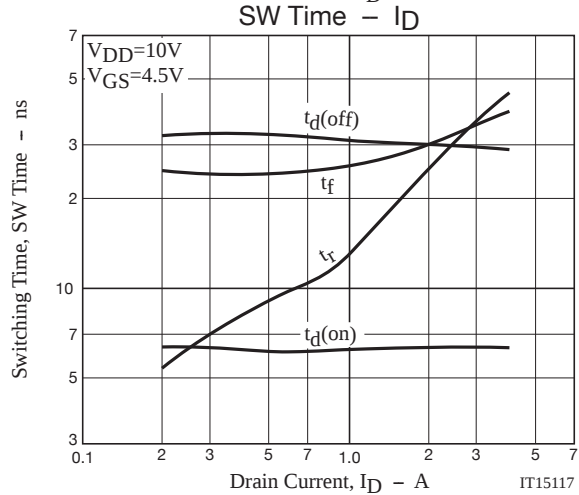
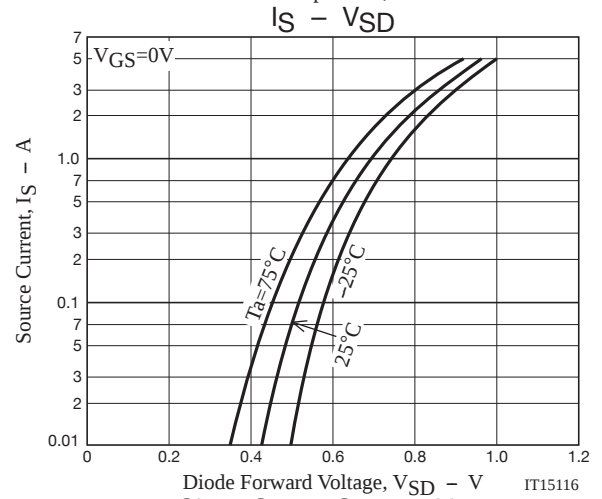
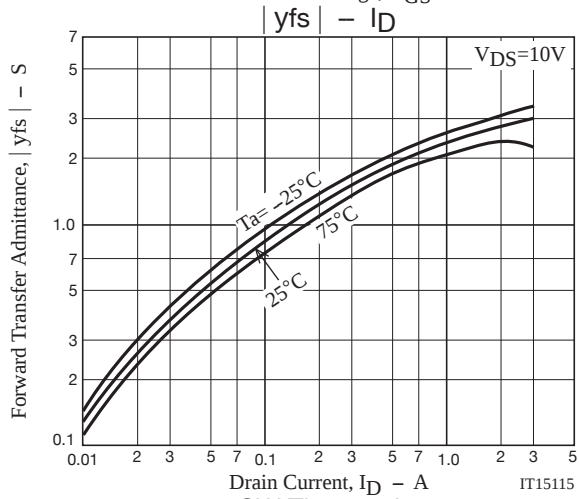
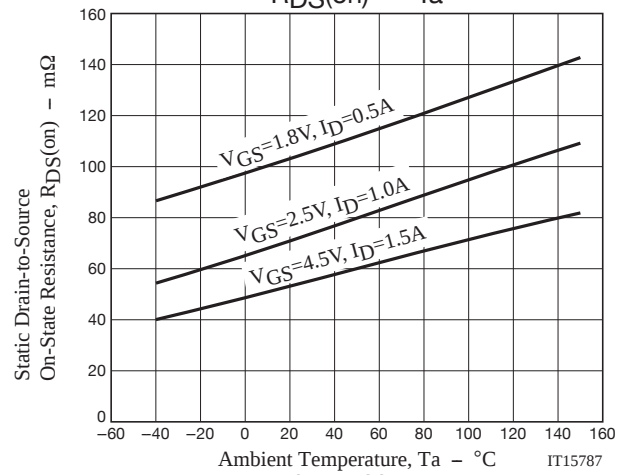
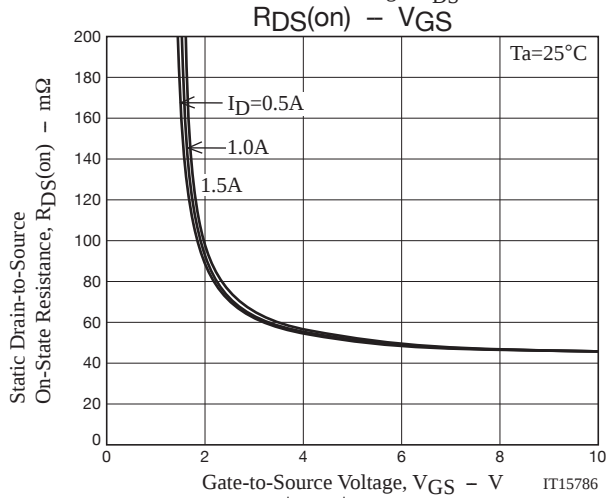
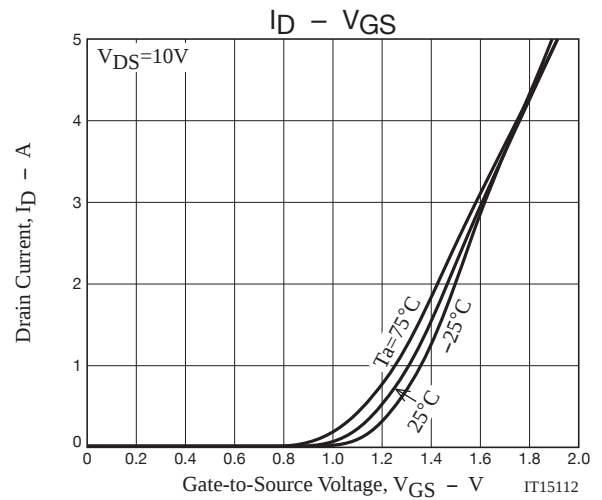
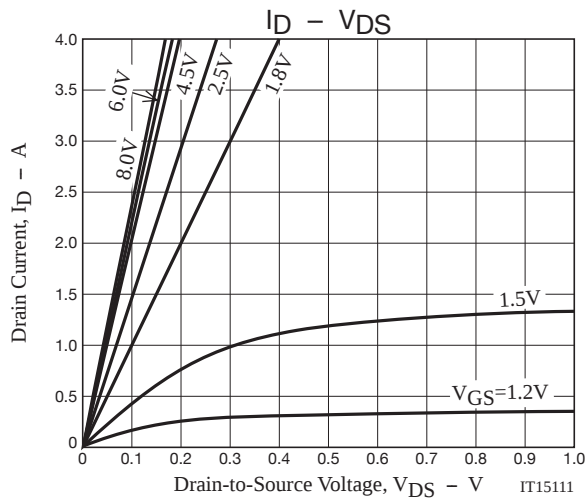
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=1.5A$		2.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1.5A, V_{GS}=4.5V$		54	71	m Ω
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=2.5V$		73	103	m Ω
	$R_{DS(on)2}$	$I_D=0.5A, V_{GS}=1.8V$		104	156	m Ω
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		260		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		65		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		50		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		6.2		ns
Rise Time	t_r	See specified Test Circuit.		19		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		30		ns
Fall Time	t_f	See specified Test Circuit.		28		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=3.5A$		2.8		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=4.5V, I_D=3.5A$		0.6		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=4.5V, I_D=3.5A$		0.9		nC
Diode Forward Voltage	V_{SD}	$I_S=3.5A, V_{GS}=0V$		0.85	1.2	V

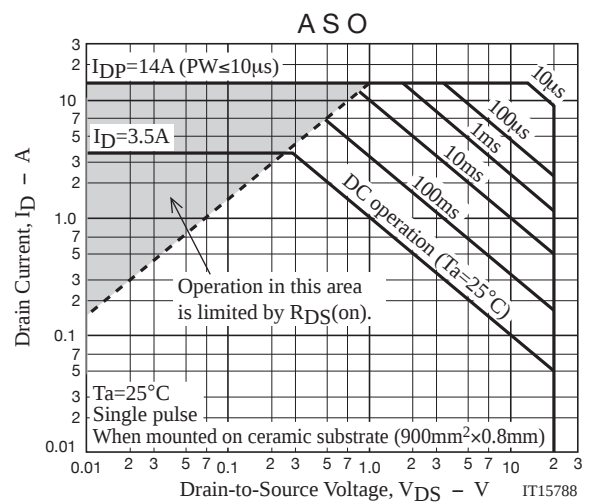
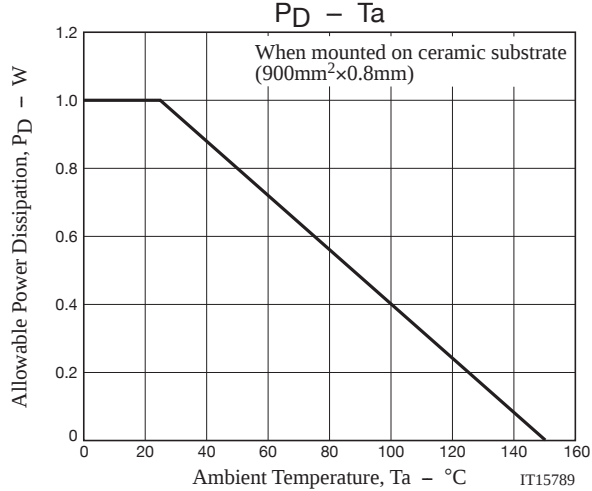
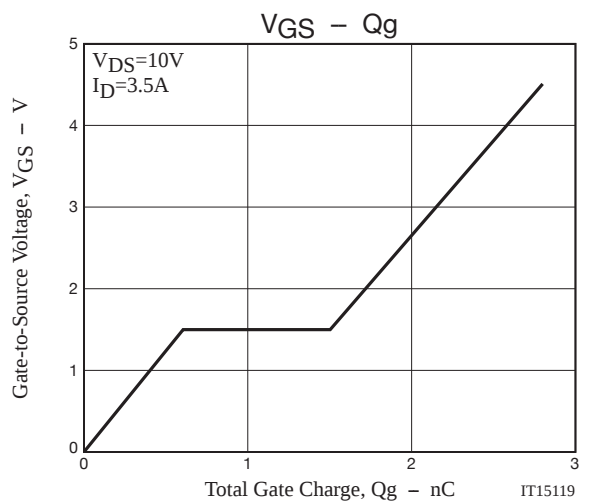
Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
CPH3456-TL-H	CPH3	3,000pcs./reel	Pb Free and Halogen Free





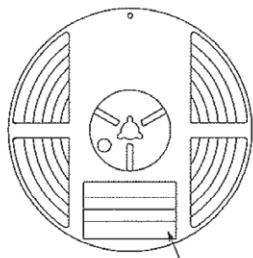
Embossed Taping Specification

CPH3456-TL-H

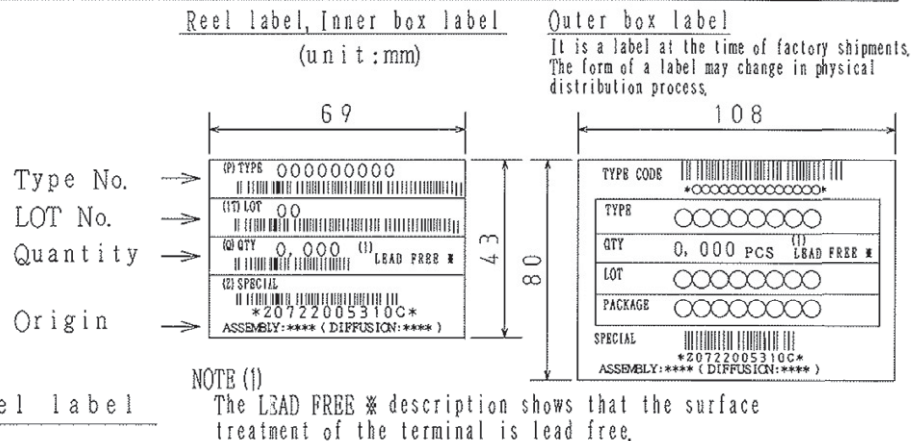
1. Packing Format

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)
CPH3	CPH3	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



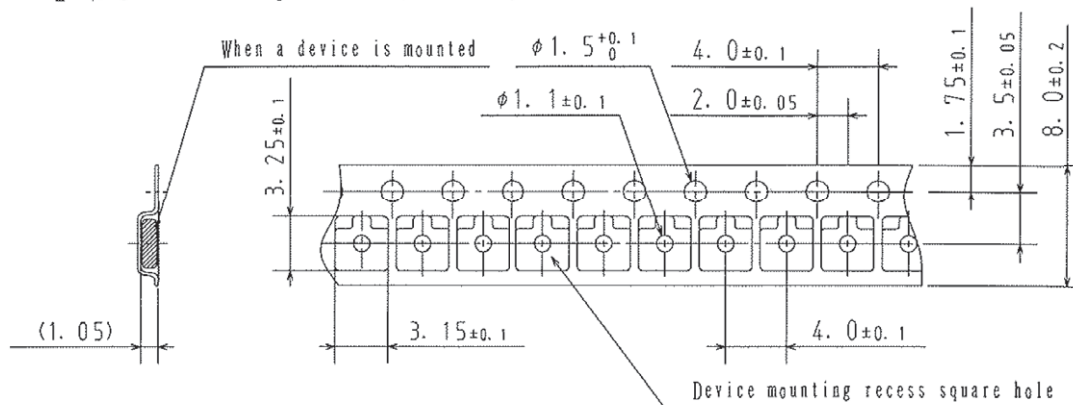
Reel label



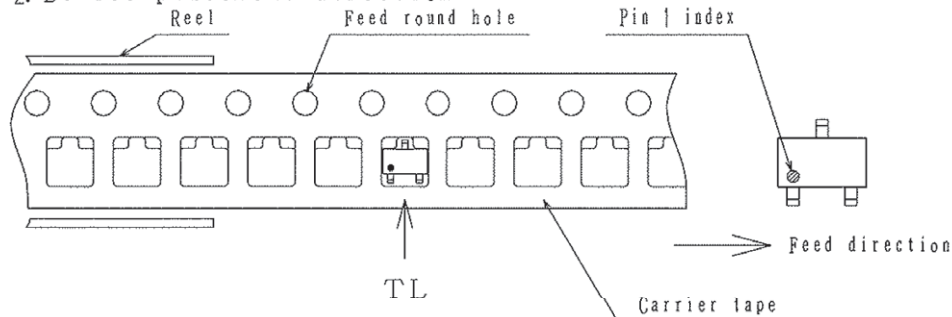
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction



Those with one electrode terminal on the feed hole side.....TL

Note on usage : Since the CPH3456 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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