# **CPH6442**

# Power MOSFET 60V, $43m\Omega$ , 6A, Single N-Channel



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#### **Features**

- 4V Drive
- Low On-Resistance
- ESD Diode-Protected Gate
- Pb-Free, and RoHS Compliance
- Halogen Free Compliance : CPH6442-TL-W

# **Specifications**

**Absolute Maximum Ratings** at Ta = 25°C

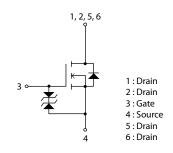
Parameter	Symbol	Value	Unit
Drain to Source Voltage	V <sub>DSS</sub>	60	٧
Gate to Source Voltage	V <sub>GSS</sub>	±20	٧
Drain Current (DC)	ID	6	Α
Drain Current (Pulse) PW≤10μs, duty cycle≤1%	IDP	24	А
Power Dissipation When mounted on ceramic substrate (900mm² × 0.8mm)	PD	1.6	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	–55 to +150	°C

# **Thermal Resistance Ratings**

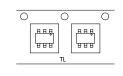
Parameter	Symbol	Value	Unit
Junction to Ambient			
When mounted on ceramic substrate	$R_{\theta JA}$	78.1	°C/W
$(900 \text{mm}^2 \times 0.8 \text{mm})$			

VDSS	RDS(on) Max	ID Max
	43 mΩ@10V	
60V	59 mΩ@4.5V	6A
	65 mΩ@4V	

#### Electrical Connection N-Channel



Packing Type: TL Marking





Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

#### **ORDERING INFORMATION**

See detailed ordering and shipping information on page 5 of this data sheet.

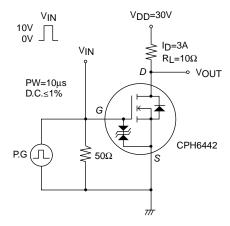
# **CPH6442**

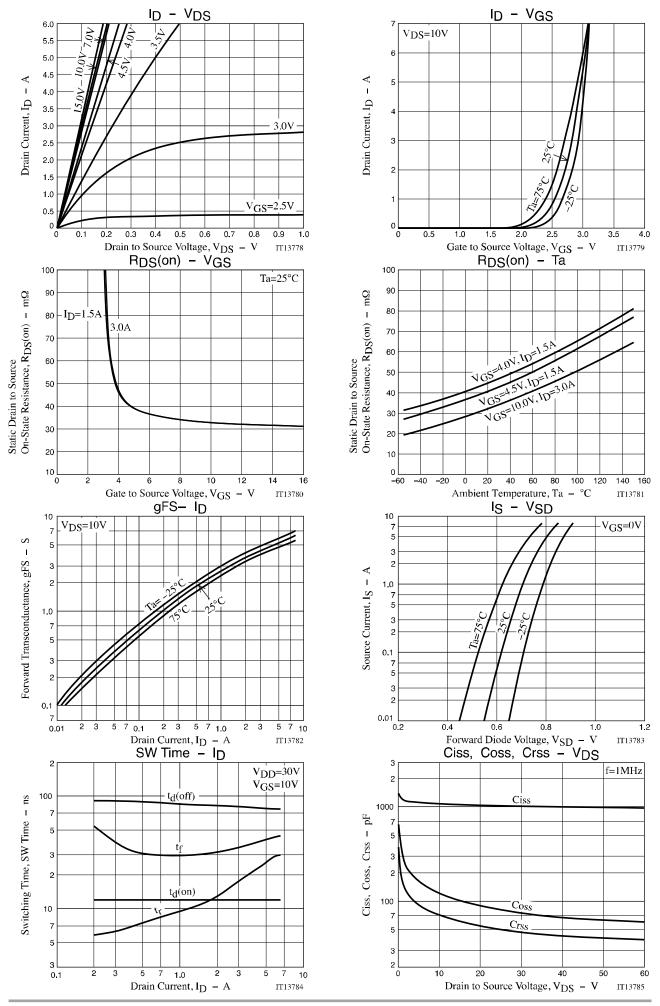
### **Electrical Characteristics** at Ta = 25°C

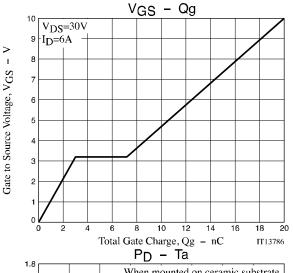
Parameter Symbol	0	O a different		Value		
	Symbol	Conditions	min	typ	max	Unit
Drain to Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	60			٧
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μΑ
Gate to Source Leakage Current	IGSS	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μΑ
Gate Threshold Voltage	V <sub>GS</sub> (th)	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	1.2		2.6	>
Forward Transconductance	9FS	V <sub>DS</sub> =10V, I <sub>D</sub> =3A	2.6	4.4		S
Static Drain to Source On-State Resistance	R <sub>DS</sub> (on)1	I <sub>D</sub> =3A, V <sub>GS</sub> =10V		33	43	mΩ
	R <sub>DS</sub> (on)2	I <sub>D</sub> =1.5A, V <sub>GS</sub> =4.5V		42	59	mΩ
	R <sub>DS</sub> (on)3	I <sub>D</sub> =1.5A, V <sub>GS</sub> =4V		46	65	mΩ
Input Capacitance	Ciss			1040		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		90		pF
Reverse Transfer Capacitance	Crss			55		pF
Turn-ON Delay Time	t <sub>d</sub> (on)			12		ns
Rise Time	t <sub>r</sub>	Out of the district of the dis		18		ns
Turn-OFF Delay Time	t <sub>d</sub> (off)	See specified Test Circuit		80		ns
Fall Time	tf			35		ns
Total Gate Charge	Qg			20		nC
Gate to Source Charge	Qgs	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =6A		3.0		nC
Gate to Drain "Miller" Charge	Qgd	]		4.2		nC
Forward Diode Voltage	V <sub>SD</sub>	I <sub>S</sub> =6A, V <sub>GS</sub> =0V		0.82	1.2	٧

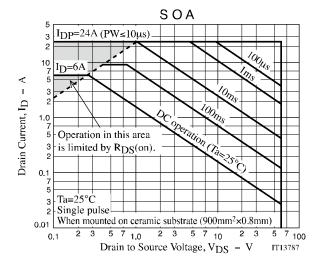
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

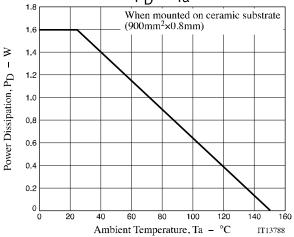
# **Switching Time Test Circuit**

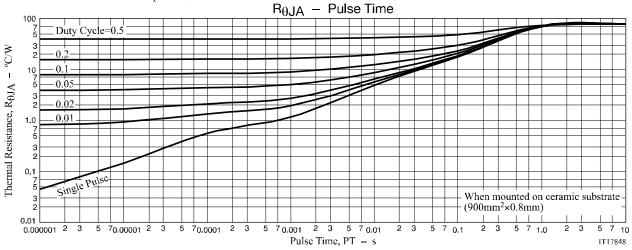












# **Package Dimensions**

CPH6442-TL-E / CPH6442-TL-W

### CPH<sub>6</sub>

CASE 318BD ISSUE O

Unit: mm

1: Drain

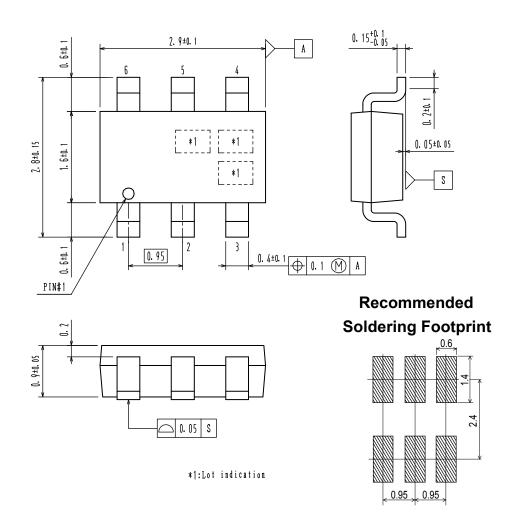
2: Drain

3: Gate

4 : Source

5: Drain

6: Drain



#### ORDERING INFORMATION

Device	Package	Shipping	Note
CPH6442-TL-E	CPH6, SC-74	3,000 pcs. / Tape & Reel	Pb-Free
CPH6442-TL-W	SOT-26, SOT-457	5,000 pcs. / Tape & Neel	Pb-Free and Halogen Free

Note on usage: Since the CPH6442 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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