PCP1403 N-Channel Power MOSFET 60V, 4.5A, 117mΩ, Single PCP



Features

- On-resistance $R_{DS}(on)1=92m\Omega(typ.)$
- 4V drive
- Protection Diode in
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	VDSS		60	V
Gate to Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	۱ _D		4.5	А
Drain Current (Pulse)	IDP	PW≤10µs, duty cycle≤1%	18	А
Power Dissipation	6-	Tc=25°C	3.5	W
	PD	When mounted on ceramic substrate (600mm ² ×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		- 55 to +150	°C

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.

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Case Steady State	R _{θJC}	35.7	°C /W
Junction to Ambient When mounted on ceramic substrate (600mm ² ×0.8mm)	R _{θJA}	96.1	°C /W

Electrical Characteristics at Ta = 25°C

Deremeter	Qumbal	Que ditions	Value			11
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	60			V
Zero-Gate Voltage Drain Current	IDSS	V _{DS} =60V, V _{GS} =0V			1	μΑ
Gate to Source Leakage Current	IGSS	V _{GS} =±16V, V _{DS} =0V			±10	μΑ
Gate Threshold Voltage	VGS(th)	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transconductance	9FS	V _{DS} =10V, I _D =2A		2.5		S
	R _{DS} (on)1	I _D =2A, V _{GS} =10V		92	117	mΩ
Static Drain to Source On-State Resistance	R _{DS} (on)2	ID=1A, VGS=4.5V		120	168	mΩ
	R _{DS} (on)3	ID=1A, VGS=4V		132	185	mΩ
Input Capacitance	Ciss			310		pF
Output Capacitance	Coss	V _{DS} =20V, f=1MHz		40		pF
Reverse Transfer Capacitance	Crss			25		pF

Continued on next page.

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

Semiconductor Components Industries, LLC, 2014 May, 2014

D	0.1.1			Value		
Parameter	Symbol	Conditions	min	typ	max	Unit
Turn-ON Delay Time	t _d (on)	See specified Test Circuit		5.6		ns
Rise Time	tr			7.0		ns
Turn-OFF Delay Time	t _d (off)			26		ns
Fall Time	tf			14		ns
Total Gate Charge	Qg	V _{DS} =30V, V _{GS} =10V, I _D =4.5A		6.7		nC
Gate to Source Charge	Qgs			1.0		nC
Gate to Drain "Miller" Charge	Qgd			1.6		nC
Forward Diode Voltage	V _{SD}	IS=4.5A, VGS=0V		0.88	1.2	V

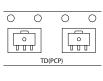
Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Ordering & Package Information

Device	Package	Shipping	note
PCP1403-TD-H	PCP, SC-62 SOT-89, TO-243	1,000 pcs. / reel	Pb-Free and Halogen Free

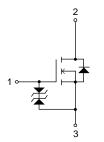
Packing Type:TD

Marking

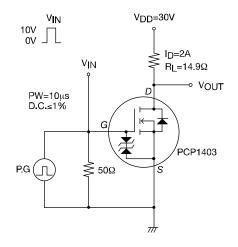


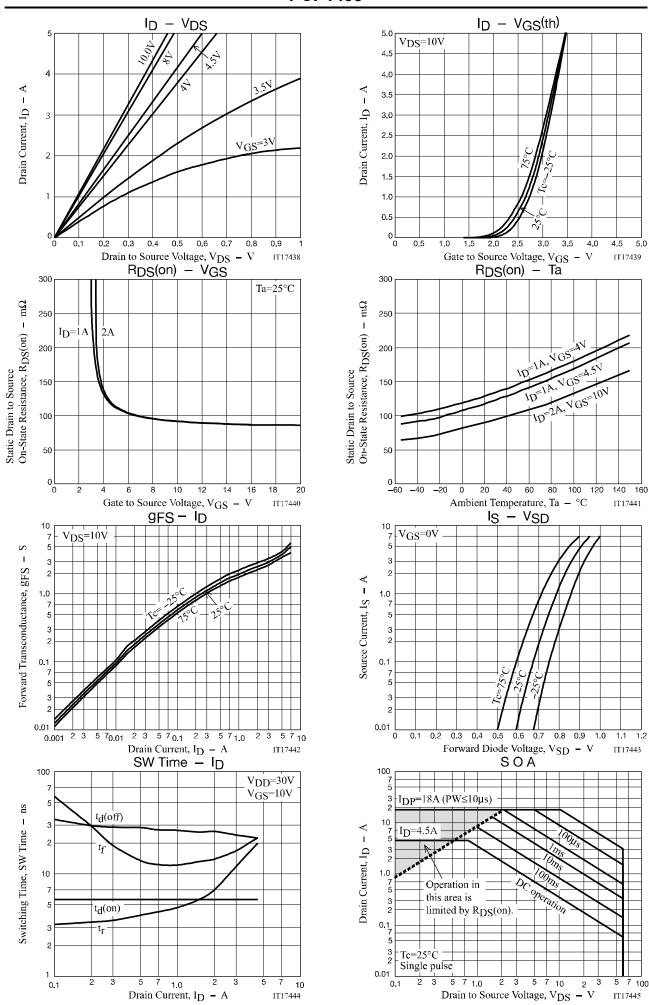


Electrical Connection



Switching Time Test Circuit





5 7 100

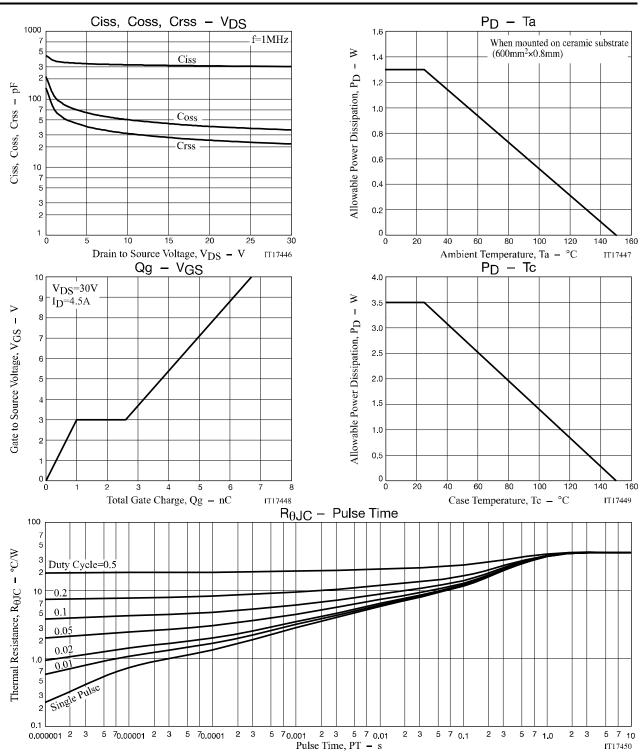
IT17445

4.0 4.5 5.0

IT17439

IT17441

IT17443



Package Dimensions

РСР1403-TD-Н

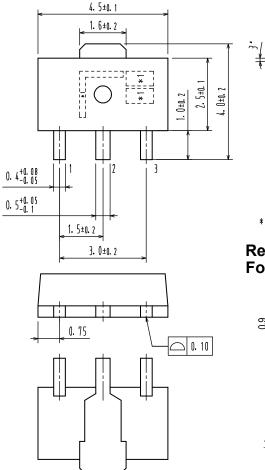
SOT-89/PCP-1

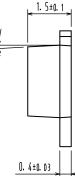
CASE 419AU ISSUE O Unit : mm

1: Gate

2: Drain

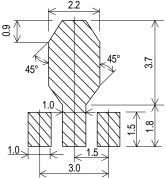
3: Source





*1:Lot indication

Recommended Soldering Footprint



Note on usage : Since the PCP1403 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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