

### General Description

The IRF7456 uses advanced trench technology to provide excellent RDS(ON) . This device is suitable for use as a wide variety of applications.

### Features

- RDS(ON)≤6.5mΩ @ VGS=10V
- RDS(ON)≤7.5mΩ @ VGS=4.5V
- Surface mount package.
- RoHS Compliant

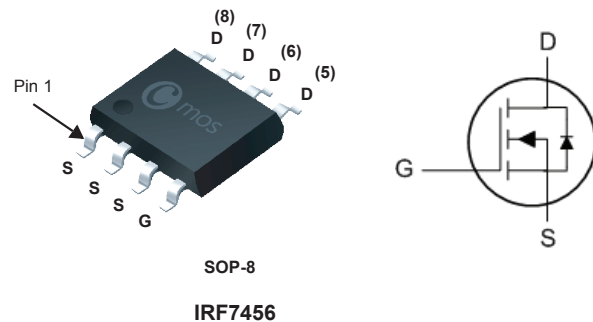
### Product Summary

BVDSS	RDSON	ID
20V	6.5mΩ	16A

### Applications

- DC/DC converter
- PWM application
- Load switch

### SOP-8 Pin Configuration



### Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	20	V
V <sub>GS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub>	Continuous Drain Current	16	A
I <sub>DM</sub>	Pulsed Drain Current	130	A
P <sub>D</sub> @T <sub>C</sub> =25°C	Total Power Dissipation	2.5	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient <sup>1</sup>	---	50	°C/W

**Electrical Characteristics ( $T_J=25\text{ }^\circ\text{C}$ , unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20	---	---	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=15A$	---	---	6.5	m $\Omega$
		$V_{GS}=4.5V, I_D=10A$	---	---	7.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	0.5	---	2	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=16V, V_{GS}=0V$	---	---	20	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance	$V_{DS}=5V, I_D=10A$	---	31	---	S
$Q_g$	Total Gate Charge	$V_{DS}=16V, V_{GS}=4.5V, I_D=16A$	---	38	---	nC
$Q_{gs}$	Gate-Source Charge		---	9	---	
$Q_{gd}$	Gate-Drain Charge		---	15	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=10V, V_{GS}=4.5V, R_G=6\Omega$ $I_D=1A$	---	20	---	ns
$T_r$	Rise Time		---	27	---	
$T_{d(off)}$	Turn-Off Delay Time		---	52	---	
$T_f$	Fall Time		---	55	---	
$C_{iss}$	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1MHz$	---	4500	---	pF
$C_{oss}$	Output Capacitance		---	1500	---	
$C_{rss}$	Reverse Transfer Capacitance		---	320	---	

**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=1A$	---	---	1.2	V

Note:

1. When mounted on 1 inch square copper board,  $t < 10$  sec.

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