

### General Description

The 63P04L uses advanced technology and design to provide excellent RDS(ON) .

This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

### Features

- Max  $r_{DS(on)}$  = 11m $\Omega$  at  $V_{GS} = 10V$
- Fast Switching
- RoHS Compliant

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	-40	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-63	A
$I_D@T_C=100^\circ C$		-50	A
$I_{DM}$	Pulsed Drain Current	-190	A
$E_{AS}$	Drain-Source Avalanche Energy <sup>1</sup>	225	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	75	W
$T_{STG}$	Storage Temperature Range	-55 to 175	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 175	$^\circ C$

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	50	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.7	$^\circ C/W$

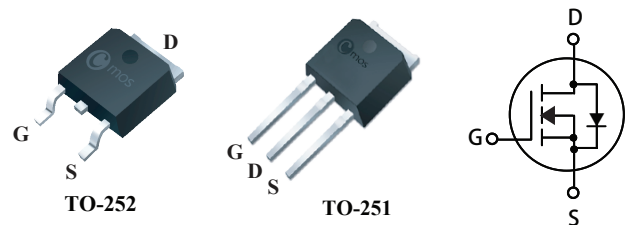
### Product Summary

BVDSS	RDSON	ID
-40V	11m $\Omega$	-63A

### Applications

- Inverters
- Power Supplies

### TO-252/251 Pin Configuration



Type	Package	Marking
CMD63P04L	TO-252	CMD63P04L
CMU63P04L	TO-251	CMU63P04L

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance <sup>2</sup>	$V_{GS}=-10V, I_D=-20A$	---	---	11	m $\Omega$
		$V_{GS}=-4.5V, I_D=-15A$	---	---	17	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1	---	-3	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=-32V, V_{GS}=0V$	---	---	-1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA
gfs	Forward Transconductance <sup>2</sup>	$V_{DS}=-10V, I_D=-20A$	---	26	---	S
$R_g$	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	4.3	---	$\Omega$
$Q_g$	Total Gate Charge	$I_D=-20A$	---	61	---	nC
$Q_{gs}$	Gate-Source Charge	$V_{DS}=-20V$	---	21	---	
$Q_{gd}$	Gate-Drain Charge	$V_{GS}=-4.5V$	---	28	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-20V, I_D=-10A$	---	14	---	ns
$T_r$	Rise Time	$R_L=2\Omega$	---	11	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=1\Omega$	---	71	---	
$T_f$	Fall Time	$V_{GSE}=-10V$	---	17	---	
$C_{iss}$	Input Capacitance	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$	---	3600	---	pF
$C_{oss}$	Output Capacitance		---	250	---	
$C_{rss}$	Reverse Transfer Capacitance		---	210	---	

### Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	-63	A
$I_{SM}$	Pulsed Source Current		---	---	-190	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_S=-20A$	---	---	-1.2	V

#### Notes:

- Starting  $T_J = 25^{\circ}\text{C}$ ,  $L=0.5\text{mH}$ ,  $I_{AS}=-30A$ ,  $V_{DD} = -30V$ ,  $V_{GS} = -10V$ .
- Pulse Test: Pulse Width < 300 $\mu\text{s}$ , Duty cycle < 2.0%.

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