

MMD50R380P

500V 0.38Ω N-channel MOSFET

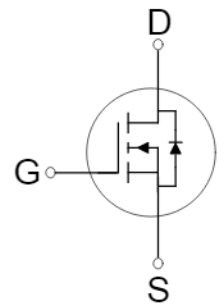
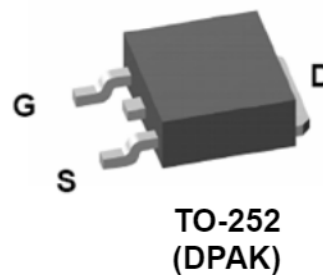
■ Description

MMD50R380P is power MOSFET using magnachip's advanced super junction technology that can realize very low on-resistance and gate charge. It will provide much high efficiency by using optimized charge coupling technology. These user friendly devices give an advantage of Low EMI to designers as well as low switching loss.

■ Key Parameters

Parameter	Value	Unit
$V_{DS} @ T_{j,max}$	550	V
$R_{DS(on),max}$	0.38	Ω
$V_{TH,typ}$	3	V
I_D	11	A
$Q_{g,typ}$	21.8	nC

■ Package & Internal Circuit



■ Features

- Low Power Loss by High Speed Switching and Low On-Resistance
- 100% Avalanche Tested
- Green Package – Pb Free Plating, Halogen Free

■ Applications

- PFC Power Supply Stages
- Switching Applications
- Adapter
- Motor Control
- DC – DC Converters

■ Ordering Information

Order Code	Marking	Temp. Range	Package	Packing	RoHS Status
MMD50R380PRH	50R380	-55 ~ 150°C	TO-252 (DPAK)	Reel	Halogen Free

■ Absolute Maximum Rating ($T_c=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit	Note
Drain – Source voltage	V_{DSS}	500	V	
Gate – Source voltage	V_{GSS}	± 30	V	
Continuous drain current	I_D	11	A	$T_c=25^\circ\text{C}$
		6.95	A	$T_c=100^\circ\text{C}$
Pulsed drain current ⁽¹⁾	I_{DM}	33	A	
Power dissipation	P_D	83	W	
Single - pulse avalanche energy	E_{AS}	220	mJ	
MOSFET dv/dt ruggedness	dv/dt	50	V/ns	
Diode dv/dt ruggedness	dv/dt	15	V/ns	
Storage temperature	T_{stg}	-55 ~150	$^\circ\text{C}$	
Maximum operating junction temperature	T_j	150	$^\circ\text{C}$	

1) Pulse width t_p limited by $T_{j,max}$

2) $I_{SD} \leq I_D, V_{DS\ peak} \leq V_{(BR)DSS}$

■ Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-case max	R_{thjc}	1.5	$^\circ\text{C/W}$
Thermal resistance, junction-ambient max	R_{thja}	62.5	$^\circ\text{C/W}$