

## SIPMOS® Power-Transistor

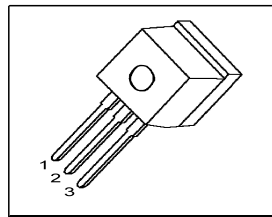
### Feature

- N-Channel
- Enhancement mode
- 175°C operating temperature
- Avalanche rated
- dv/dt rated
- Green package (lead free)

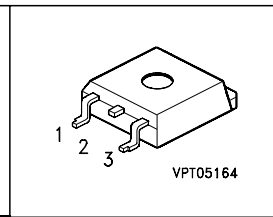
### Product Summary

$V_{DS}$	100	V
$R_{DS(on)}$	33	mΩ
$I_D$	47	A

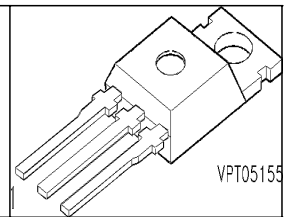
P-TO262-3-1



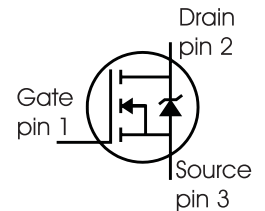
P-TO263-3-2



P-TO220-3-1



Type	Package	Ordering Code	Marking
SPP47N10	P-TO220-3-1	-	47N10
SPB47N10	P-TO263-3-2	-	47N10
SPI47N10	P-TO262-3-1	-	47N10



### Maximum Ratings, at $T_j = 25\text{ °C}$ , unless otherwise specified

Parameter	Symbol	Value	Unit
Continuous drain current	$I_D$		A
$T_C=25\text{ °C}$		47	
$T_C=100\text{ °C}$		33	
Pulsed drain current	$I_D \text{ puls}$	188	
$T_C=25\text{ °C}$			
Avalanche energy, single pulse	$E_{AS}$	400	mJ
$I_D=47\text{ A}$ , $V_{DD}=25\text{ V}$ , $R_{GS}=25\text{ Ω}$			
Avalanche energy, periodic limited by $T_{jmax}$	$E_{AR}$	17.5	
Reverse diode dv/dt	dv/dt	6	kV/μs
$I_S=47\text{ A}$ , $V_{DS}=0\text{ V}$ , $di/dt=200\text{ A/μs}$			
Gate source voltage	$V_{GS}$	±20	V
Power dissipation	$P_{tot}$	175	W
$T_C=25\text{ °C}$			
Operating and storage temperature	$T_j, T_{stg}$	-55... +175	°C
IEC climatic category; DIN IEC 68-1		55/175/56	

**Thermal Characteristics**

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Characteristics</b>					
Thermal resistance, junction - case	$R_{thJC}$	-	-	0.85	K/W
Thermal resistance, junction - ambient, leaded	$R_{thJA}$	-	-	62	
SMD version, device on PCB: @ min. footprint @ 6 cm <sup>2</sup> cooling area <sup>1)</sup>	$R_{thJA}$	-	-	62 40	

**Electrical Characteristics**, at  $T_j = 25\text{ }^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Static Characteristics</b>					
Drain-source breakdown voltage $V_{GS}=0V, I_D=2mA$	$V_{(BR)DSS}$	100	-	-	V
Gate threshold voltage, $V_{GS} = V_{DS}$ $I_D = 2\text{ mA}$	$V_{GS(th)}$	2.1	3	4	
Zero gate voltage drain current $V_{DS}=100V, V_{GS}=0V, T_j=25^\circ\text{C}$ $V_{DS}=100V, V_{GS}=0V, T_j=150^\circ\text{C}$	$I_{DSS}$	-	0.1	1 100	$\mu\text{A}$
Gate-source leakage current $V_{GS}=20V, V_{DS}=0V$	$I_{GSS}$	-	10	100	
Drain-source on-state resistance $V_{GS}=10V, I_D=33A$	$R_{DS(on)}$	-	25	33	$\text{m}\Omega$

<sup>1</sup>Device on 40mm\*40mm\*1.5mm epoxy PCB FR4 with 6cm<sup>2</sup> (one layer, 70  $\mu\text{m}$  thick) copper area for drain connection. PCB is vertical without blown air.











