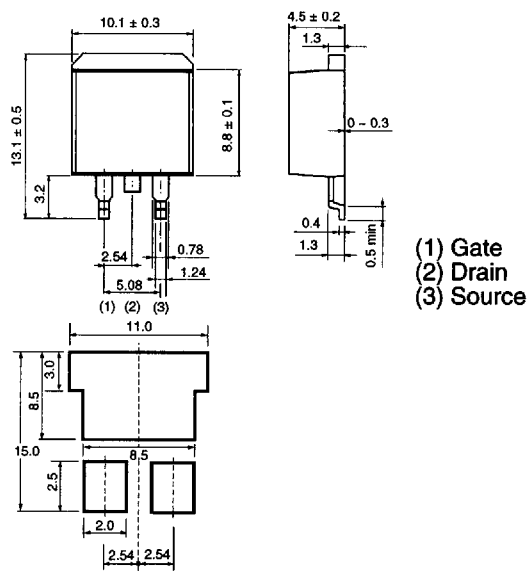


Features

- available in PSD package
- low on-resistance
- fast switching speed
- wide SOA (Safe Operating Area)
- gate-source voltage $V_{GS} = \pm 30\text{ V}$
- simple drive requirements
- easy to parallel

Dimensions (Units : mm)

2SA2042 (PSD)



Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

Parameter		Symbol	Limits	Unit	Conditions
Drain-to-source voltage		V_{DSS}	450	V	
Gate-to-source voltage		V_{GSS}	± 30	V	
Drain current	Continuous	I_D	5	A	
	Pulsed	I_{DP}	20	A	$P_W \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$
Reverse drain current	Continuous	I_{DR}	5	A	
	Pulsed	I_{DRP}	20	A	$P_W \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$
Total power dissipation		P_d	60	W	$T_C = 25^\circ\text{C}$
Channel temperature		T_{ch}	150	$^\circ\text{C}$	
Storage temperature		T_{stg}	$-55 \sim +150$	$^\circ\text{C}$	

Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Gate-to-source leakage	I_{GSS}			± 100	nA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0 \text{ V}$
Drain-to-source breakdown voltage	$V_{(BR)DSS}$	450			V	$I_D = 1 \text{ mA}$, $V_{GS} = 0 \text{ V}$
Zero gate voltage drain current	I_{DSS}			100	μA	$V_{DS} = 450 \text{ V}$, $V_{GS} = 0 \text{ V}$
Gate threshold voltage	$V_{GS(th)}$	2.0		4.0	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain-to-source on-state resistance	$R_{DS(on)}$		1.0	1.4	Ω	$I_D = 2.5 \text{ A}$, $V_{GS} = 10 \text{ V}$
Forward transfer admittance	$ Y_{fs} $	2.5	4.0		S	$V_{DS} = 10 \text{ V}$, $I_D = 2.5 \text{ A}$
Input capacitance	C_{iss}		670		pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0 \text{ V}$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}		140		pF	
Reverse transfer capacitance	C_{rss}		50		pF	
Turn-on delay time	$t_{d(on)}$		10		ns	$I_D = 2.5 \text{ A}$, $V_{DD} \cong 150 \text{ V}$, $V_{GS} = 10 \text{ V}$, $R_L = 60 \Omega$, $R_G = 10 \Omega$
Rise time	t_r		15		ns	
Turnoff delay time	$t_{d(off)}$		50		ns	
Fall time	t_f		35		ns	
Reverse recovery time	t_{rr}		400		ns	$I_{DR} = 5 \text{ A}$, $V_{GS} = 0 \text{ V}$, $di/dt = 100 \text{ A}/\mu\text{s}$
Reverse recovery load	Q_{rr}		2.0		μC	