

### Absolute maximum ratings

(T<sub>a</sub>=25°C)

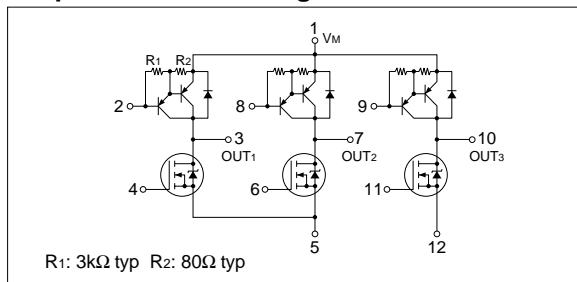
Symbol	Ratings	Unit
V <sub>M</sub>	60	V
I <sub>o</sub>	±6 (PW≤100ms)	A
I <sub>oP</sub>	±10 (PW≤1ms)	A
V <sub>GSS</sub>	±10	V
I <sub>B</sub>	-0.5	A
P <sub>T</sub>	5 (T <sub>a</sub> =25°C) 35 (T <sub>c</sub> =25°C)	W
θ <sub>j-a</sub>	25	°C/W
θ <sub>j-c</sub>	3.57	°C/W
V <sub>ISO</sub>	1000 (Between fin and lead pin, AC)	V <sub>rms</sub>
T <sub>j</sub>	150	°C
T <sub>stg</sub>	-40 to +150	°C

### Electrical characteristics (Sink : N channel MOSFET)

(T<sub>a</sub>=25°C)

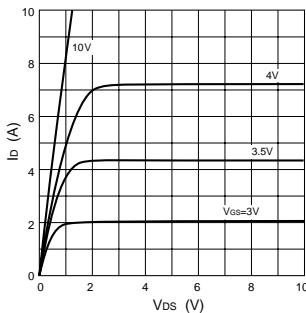
Symbol	Specification			Unit	Conditions
	min	typ	max		
V(BR)DSS	60			V	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V
I <sub>GSS</sub>			±500	nA	V <sub>GS</sub> =±10V
I <sub>DSS</sub>			250	μA	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V
V <sub>TH</sub>	1.0		2.0	V	V <sub>DS</sub> =10V, I <sub>D</sub> =250μA
Re(yfs)	3.1	4.6		S	V <sub>DS</sub> =10V, I <sub>D</sub> =4A
R <sub>DS(ON)</sub>		0.17	0.22	Ω	V <sub>GS</sub> =10V, I <sub>D</sub> =4A
		0.25	0.30		V <sub>GS</sub> =4V, I <sub>D</sub> =4A
C <sub>iss</sub>		400		pF	V <sub>BS</sub> =25V, f=1.0MHz, V <sub>GS</sub> =0V
C <sub>oss</sub>		160		pF	V <sub>GS</sub> =0V
ton		80		ns	I <sub>D</sub> =4A, V <sub>DD</sub> =30V, V <sub>GS</sub> =5V
toff		50		ns	V <sub>GS</sub> =5V
V <sub>SD</sub>		1.1	1.5	V	I <sub>SD</sub> =4A, V <sub>GS</sub> =0V
trr		150		ns	I <sub>F</sub> =±100mA

### Equivalent circuit diagram

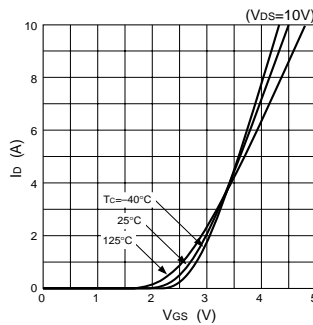


### Characteristic curves (N-channel)

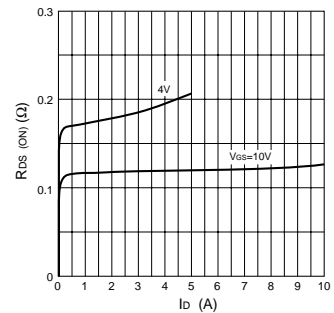
V<sub>DS</sub>-I<sub>D</sub> Characteristics (Typical)



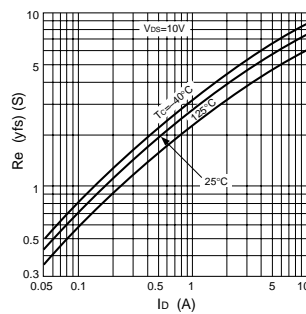
V<sub>GS</sub>-I<sub>D</sub> Temperature Characteristics (Typical)



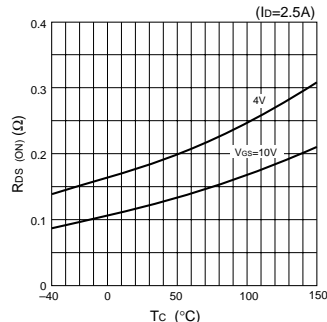
I<sub>D</sub>-R<sub>DS(ON)</sub> Characteristics (Typical)



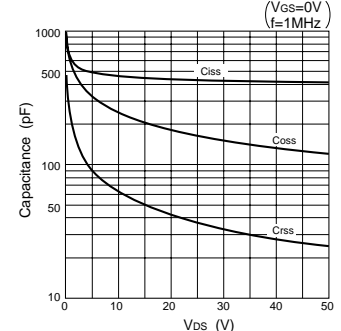
I<sub>D</sub>-Re(yfs) Temperature Characteristics (Typical)



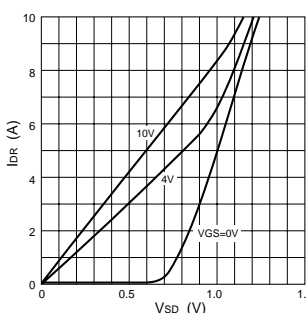
T<sub>c</sub>-R<sub>DS(ON)</sub> Characteristics (Typical)



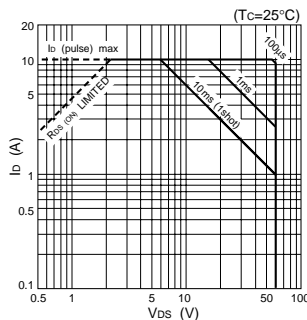
V<sub>DS</sub>-Capacitance Characteristics (Typical)



V<sub>SD</sub>-I<sub>DR</sub> Characteristics (Typical)



Safe Operating Area (SOA)

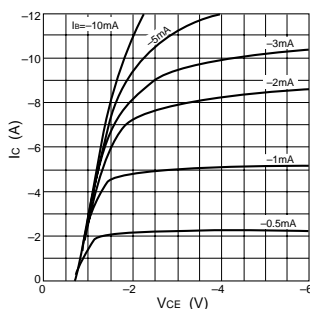


## Electrical characteristics (Source: PNP transistor) (T<sub>a</sub>=25°C)

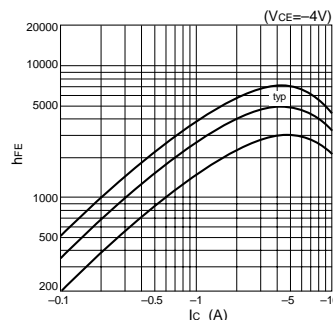
Symbol	Specification			Unit	Conditions
	min	typ	max		
I <sub>CB0</sub>			-10	μA	V <sub>CB</sub> =-60V
I <sub>EB0</sub>	-1		-5	mA	V <sub>EB</sub> =-6V
V <sub>CEO</sub>	-60			V	I <sub>C</sub> =-25mA
h <sub>FE</sub>	2000	5000	12000		V <sub>CE</sub> =-4V, I <sub>C</sub> =-4A
V <sub>CE(sat)</sub>			-1.5	V	I <sub>C</sub> =-4A, I <sub>B</sub> =-10mA
V <sub>BE(sat)</sub>			-2.0	V	
V <sub>FEC</sub>			2.0	V	I <sub>FEC</sub> =4A
t <sub>rr</sub>		1.0		μs	I <sub>F</sub> =±0.5A
t <sub>on</sub>		1.0		μs	V <sub>CC</sub> ≐-25V, I <sub>C</sub> =-4A,
t <sub>stg</sub>		1.4		μs	
t <sub>f</sub>		0.6		μs	
f <sub>T</sub>		120		MHz	V <sub>CE</sub> =-12V, I <sub>E</sub> =1A
C <sub>ob</sub>		150		pF	V <sub>CB</sub> =-10V, f=1MHz

## Characteristic curves (PNP)

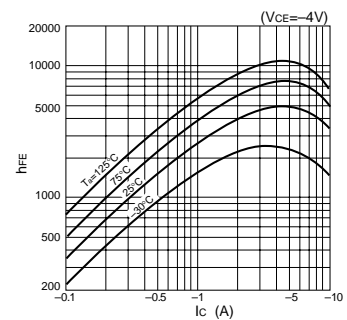
I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)



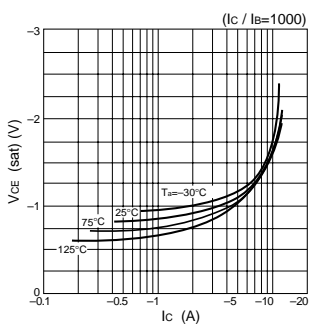
h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)



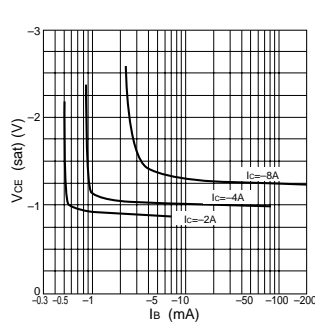
h<sub>FE</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



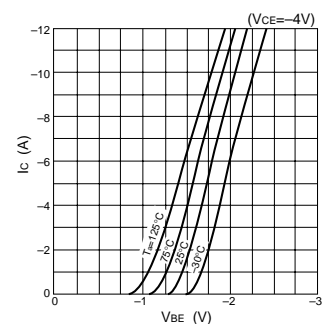
V<sub>CE(sat)</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



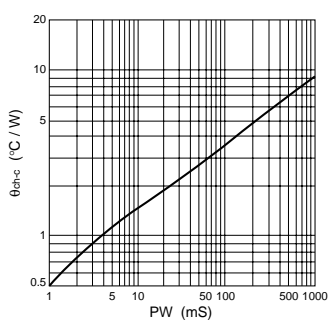
V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)



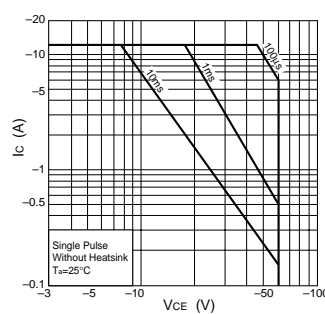
I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



θ<sub>j-a</sub>-PW Characteristics



Safe Operating Area (SOA)



P<sub>T</sub>-T<sub>a</sub> Characteristics

