

Absolute maximum ratings

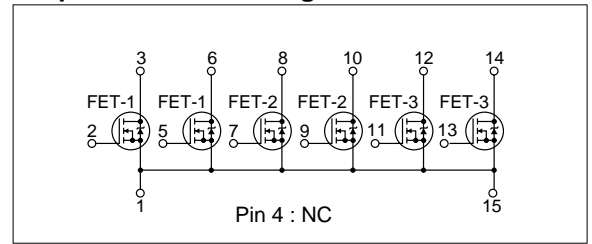
($T_a=25^\circ\text{C}$)

Symbol	Ratings			Unit
	FET1	FET2	FET3	
V_{DSS}		150		V
V_{GS}		+20, -10		V
I_D	± 7	± 5	± 7	A
$I_D(\text{pulse})^{*1}$	± 15	± 10	± 15	A
E_{AS}^{*2}		15		mJ
I_{AS}		5		A
P_T	5 ($T_a=25^\circ\text{C}$, with all circuits operating, without heatsink)			W
	35 ($T_c=25^\circ\text{C}$, with all circuits operating, with infinite heatsink)			W
θ_{j-a}	25 (Junction-Air, $T_a=25^\circ\text{C}$, with all circuits operating)			$^\circ\text{C/W}$
θ_{j-c}	3.57 (Junction-Case, $T_c=25^\circ\text{C}$, with all circuits operating)			$^\circ\text{C/W}$
V_{ISO}	1000 (Between fin and lead pin, AC)			Vrms
T_{ch}	150			$^\circ\text{C}$
T_{stg}	-40 to +150			$^\circ\text{C}$

*1 : $PW \leq 100\mu\text{s}$, $duty \leq 50\%$

*2 : $V_{DD}=25\text{V}$, $L=1.0\text{mH}$, $I_L=5\text{A}$ unclamped, $R_G=50\Omega$, see Fig. E on page 15.

Equivalent circuit diagram



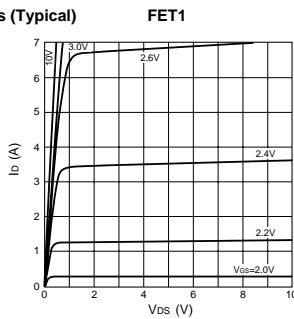
Electrical characteristics

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

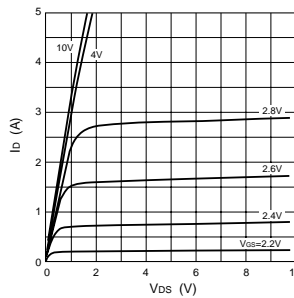
Symbol	FET1				FET2				FET3								
	Specification			Unit	Specification			Unit	Specification			Unit					
	min	typ	max		min	typ	max		min	typ	max						
$V_{(BR)DSS}$	150			V	$I_D=100\mu\text{A}$, $V_{GS}=0\text{V}$	150			V	$I_D=100\mu\text{A}$, $V_{GS}=0\text{V}$	150			V	$I_D=100\mu\text{A}$, $V_{GS}=0\text{V}$		
I_{GSS}			100	nA	$V_{GS}=20\text{V}$			100	nA	$V_{GS}=20\text{V}$			100	nA	$V_{GS}=20\text{V}$		
I_{DSS}			100	μA	$V_{DS}=150\text{V}$, $V_{GS}=0\text{V}$			100	μA	$V_{DS}=150\text{V}$, $V_{GS}=0\text{V}$			100	μA	$V_{DS}=150\text{V}$, $V_{GS}=0\text{V}$		
V_{TH}	1.0		2.0	V	$V_{DS}=10\text{V}$, $I_D=250\mu\text{A}$	1.0		2.0	V	$V_{DS}=10\text{V}$, $I_D=250\mu\text{A}$	1.0		2.0	V	$V_{DS}=10\text{V}$, $I_D=250\mu\text{A}$		
$R_{\theta(j-fs)}$	7		12	S	$V_{DS}=10\text{V}$, $I_D=3.5\text{A}$	3		5.5	S	$V_{DS}=10\text{V}$, $I_D=2.5\text{A}$	4		9	S	$V_{DS}=10\text{V}$, $I_D=3.5\text{A}$		
$R_{DS(ON)}$		80	105	$\text{m}\Omega$	$V_{GS}=10\text{V}$, $I_D=3.5\text{A}$	330	440	$\text{m}\Omega$	$V_{GS}=10\text{V}$, $I_D=2.5\text{A}$	150	200	$\text{m}\Omega$	$V_{GS}=10\text{V}$, $I_D=3.5\text{A}$	170	230	$\text{m}\Omega$	$V_{GS}=4\text{V}$, $I_D=3.5\text{A}$
		85	115	$\text{m}\Omega$	$V_{GS}=4\text{V}$, $I_D=3.5\text{A}$	370	480	$\text{m}\Omega$	$V_{GS}=4\text{V}$, $I_D=2.5\text{A}$	170	230	$\text{m}\Omega$	$V_{GS}=4\text{V}$, $I_D=3.5\text{A}$	170	230	$\text{m}\Omega$	$V_{GS}=4\text{V}$, $I_D=3.5\text{A}$
C_{ISS}	1900			pF	$V_{DS}=10\text{V}$, $f=1.0\text{MHz}$	380			pF	$V_{DS}=10\text{V}$, $f=1.0\text{MHz}$	870			pF	$V_{DS}=10\text{V}$, $f=1.0\text{MHz}$		
C_{OSS}	630			pF	$V_{GS}=0\text{V}$	95			pF	$V_{GS}=0\text{V}$	320			pF	$V_{GS}=0\text{V}$		
C_{RSS}	420			pF	$V_{GS}=0\text{V}$	25			pF	$V_{GS}=0\text{V}$	210			pF	$V_{GS}=0\text{V}$		
$t_{d(ON)}$	35			ns	$I_D=3.5\text{A}$, $V_{DD} \approx 70\text{V}$, $R_L=20\Omega$	25			ns	$I_D=2.5\text{A}$, $V_{DD} \approx 70\text{V}$, $R_L=28\Omega$	25			ns	$I_D=3.5\text{A}$, $V_{DD} \approx 70\text{V}$, $R_L=20\Omega$		
t_r	70			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.	50			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.	55			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.		
$t_{d(OFF)}$	140			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.	55			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.	80			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.		
t_f	90			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.	40			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.	50			ns	$V_{GS}=5\text{V}$, see Fig.3 on page 16.		
V_{SD}	1.0	1.5		V	$I_{SD}=7\text{A}$, $V_{GS}=0\text{V}$	1.1	1.5		V	$I_{SD}=5\text{A}$, $V_{GS}=0\text{V}$	1.0	1.5		V	$I_{SD}=7\text{A}$, $V_{GS}=0\text{V}$		
t_{rr}	620			ns	$I_F=\pm 100\text{mA}$	180			ns	$I_F=\pm 100\text{mA}$	500			ns	$I_F=\pm 100\text{mA}$		

Characteristic curves

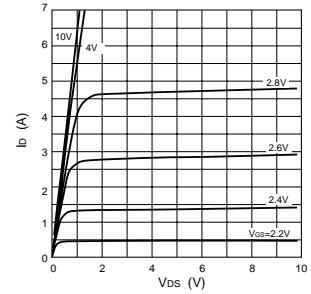
I_D - V_{DS} Characteristics (Typical)



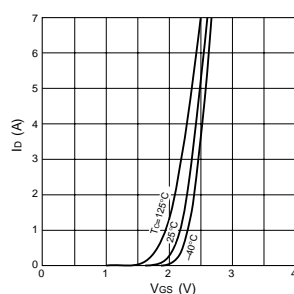
FET2



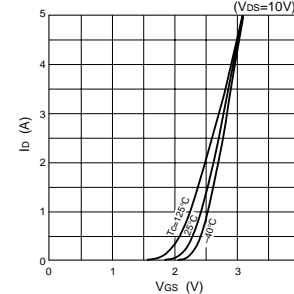
FET3



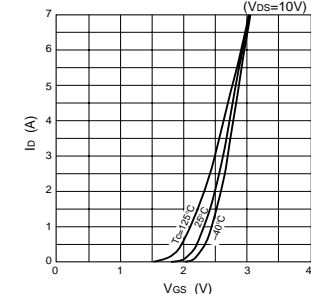
I_D - V_{GS} Characteristics (Typical)



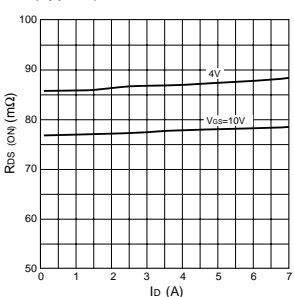
FET2



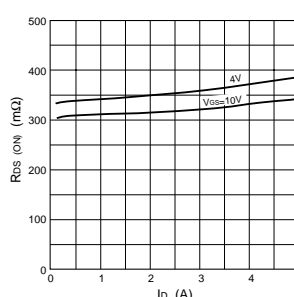
FET3



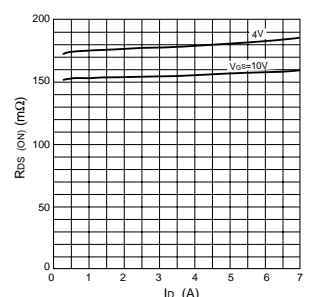
$R_{DS(ON)}$ - I_D Characteristics (Typical)



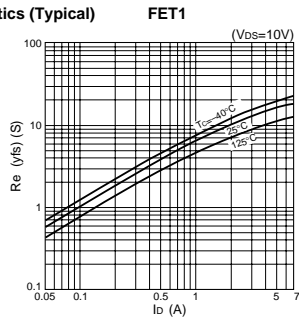
FET2



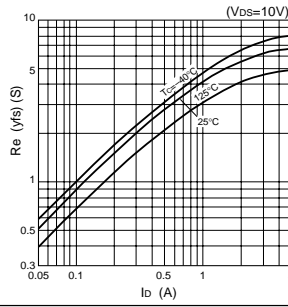
FET3



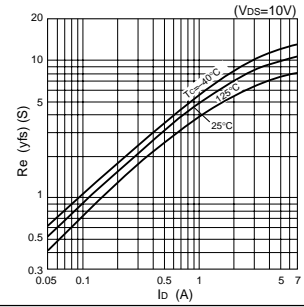
Re(yfs)-Id Characteristics (Typical)



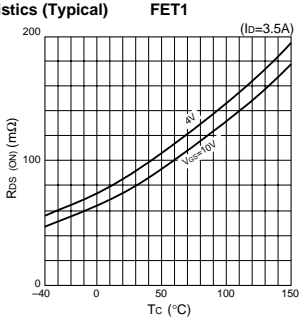
FET2



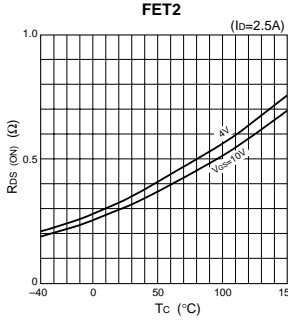
FET3



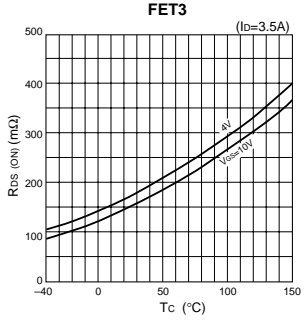
Rds(on)-Tc Characteristics (Typical)



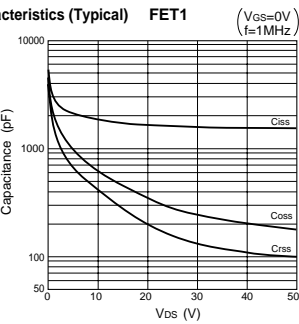
FET2



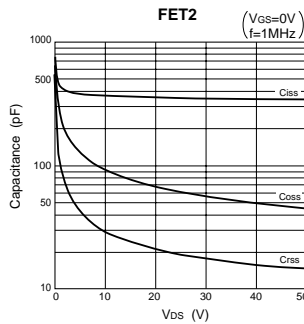
FET3



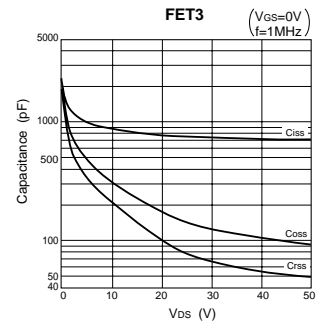
Capacitance-Vds Characteristics (Typical)



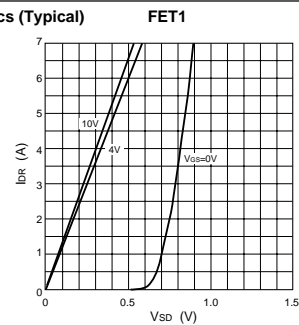
FET2



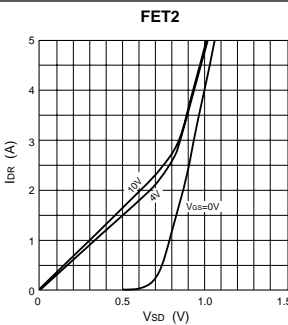
FET3



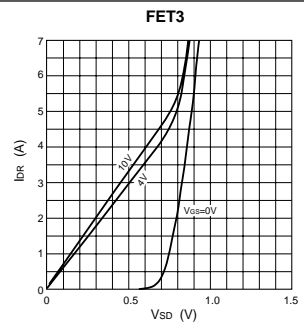
Idr-Vsd Characteristics (Typical)



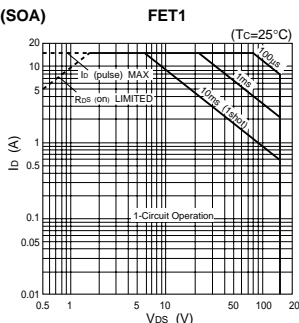
FET2



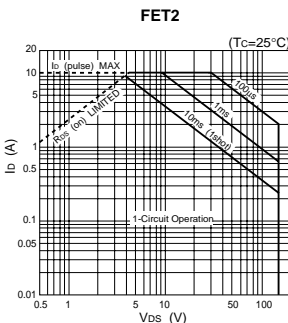
FET3



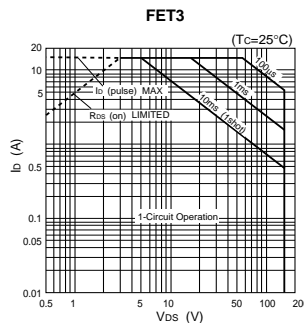
Safe Operating Area (SOA)



FET2



FET3



Pt-Ta Characteristics

