

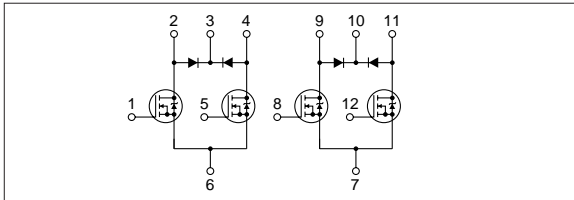
#### Absolute maximum ratings

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

Symbol	Ratings	Unit
$V_{DSS}$	60	V
$V_{GSS}$	$\pm 10$	V
$I_D$	$\pm 5$	A
$I_{D(pulse)}$	$\pm 10$ ( $PW \leq 1\text{ms}$ )	A
$E_{AS}^*$	2	mJ
$I_F$	5 ( $PW \leq 0.5\text{ms}$ , $D_u \leq 25\%$ )	A
$I_{FSM}$	10 ( $PW \leq 10\text{ms}$ , Single pulse)	A
$V_R$	120	V
$P_T$	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
$\theta_{j-a}$	25 (Junction-Air, $T_a=25^\circ\text{C}$ , with all circuits operating)	$^\circ\text{C/W}$
$\theta_{j-c}$	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	$^\circ\text{C}$

\* :  $V_{DD}=20\text{V}$ ,  $L=1\text{mH}$ ,  $I_D=1.7\text{A}$ , unclamped, see Fig. E on page 15.

#### Equivalent circuit diagram



#### Electrical characteristics

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

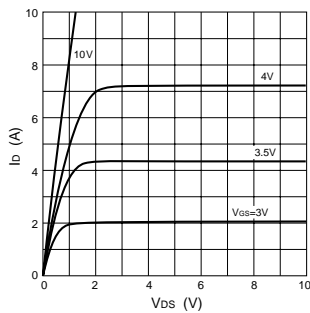
Symbol	Specification			Unit	Conditions
	min	typ	max		
$V_{(BR)DSS}$	60			V	$I_D=250\mu\text{A}$ , $V_{GS}=0\text{V}$
$I_{GSS}$			$\pm 500$	nA	$V_{GS}=\pm 10\text{V}$
$I_{DSS}$			250	$\mu\text{A}$	$V_{DS}=60\text{V}$ , $V_{GS}=0\text{V}$
$V_{TH}$	1.0		2.0	V	$V_{DS}=10\text{V}$ , $I_D=250\mu\text{A}$
$R_{DS(ON)}$	3.1	4.6		$\Omega$	$V_{DS}=10\text{V}$ , $I_D=5\text{A}$
		0.17	0.22	$\Omega$	$V_{GS}=10\text{V}$ , $I_D=2.5\text{A}$
		0.25	0.30	$\Omega$	$V_{GS}=4\text{V}$ , $I_D=2.5\text{A}$
$C_{iss}$		400		pF	$V_{DS}=25\text{V}$ , $f=1.0\text{MHz}$ , $V_{GS}=0\text{V}$
$C_{oss}$		160		pF	
$t_{on}$		80		ns	$I_D=5\text{A}$ , $V_{DD}=30\text{V}$ , $V_{GS}=5\text{V}$ , see Fig. 3 on page 16.
$t_{off}$		50		ns	
$V_{SD}$		1.1	1.5	V	$I_{SD}=5\text{A}$ , $V_{GS}=0\text{V}$
$t_{rr}$		150		ns	$I_{SD}=\pm 100\text{mA}$

#### Diode for flyback voltage absorption

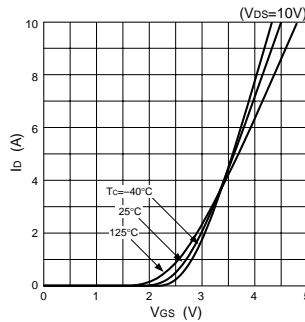
Symbol	Specification			Unit	Conditions
	min	typ	max		
$V_R$	120			V	$I_R=10\mu\text{A}$
$V_F$		1.0	1.2	V	$I_F=1\text{A}$
$I_R$			10	$\mu\text{A}$	$V_R=120\text{V}$
$t_{rr}$		100		ns	$I_F=\pm 100\text{mA}$

#### Characteristic curves

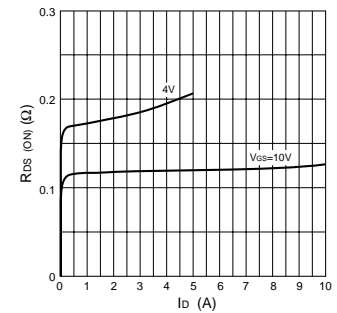
$I_D$ - $V_{DS}$  Characteristics (Typical)



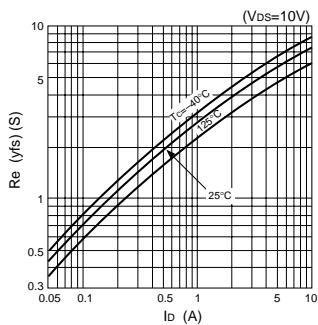
$I_D$ - $V_{GS}$  Characteristics (Typical)



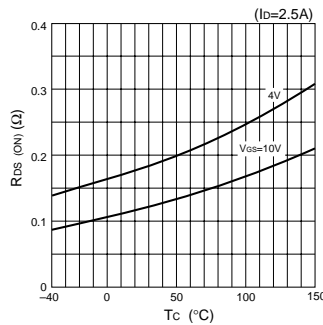
$R_{DS(ON)}$ - $I_D$  Characteristics (Typical)



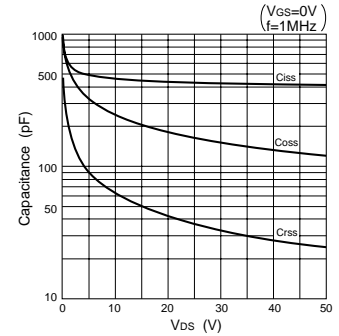
$R_{e(yfs)}$ - $I_D$  Characteristics (Typical)



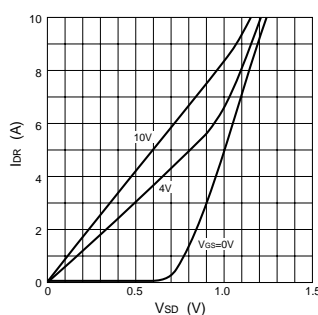
$R_{DS(ON)}$ - $T_c$  Characteristics (Typical)



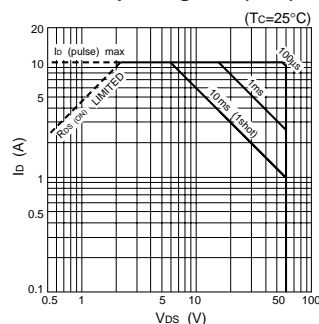
Capacitance- $V_{DS}$  Characteristics (Typical)



$I_{DR}$ - $V_{SD}$  Characteristics (Typical)



Safe Operating Area (SOA)



$P_T$ - $T_a$  Characteristics

