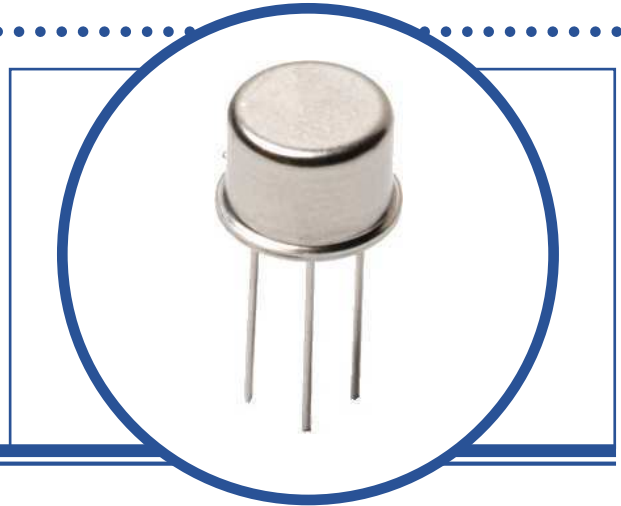


N-CHANNEL ENHANCEMENT MODE MOSFET 2N6659X

- Switching Regulators
- Converters
- Motor Drives



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{DS}	Drain – Source Voltage		35V
V_{GS}	Gate – Source Voltage		$\pm 20\text{V}$
I_D	Drain Current	$T_C = 25^\circ\text{C}$	1.4A
I_D	Drain Current	$T_C = 100^\circ\text{C}$	1.0A
I_{DM}^1	Pulsed Drain Current		3A
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	6.25W
		Derate Above $T_C = 25^\circ\text{C}$	0.05W/ $^\circ\text{C}$
T_J	Junction Temperature Range		-55 to +150 $^\circ\text{C}$
T_{stg}	Storage Temperature Range		-55 to +150 $^\circ\text{C}$

¹ Pulse width limited by maximum junction temperature.

N-CHANNEL ENHANCEMENT MODE MOSFET 2N6659X

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)DSS}$	Drain – Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 10\mu\text{A}$	35			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 1.0\text{mA}$	0.8	1.6	2	
I_{GSS}	Gate – Body Leakage Current	$V_{GS} = \pm 15\text{V}$ $V_{DS} = 0\text{V}$ $T_C = 125^\circ\text{C}$			± 100 ± 500	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 35\text{V}$ $V_{GS} = 0$ $V_{DS} = 35\text{V}$ $V_{GS} = 0$ $T_C = 125^\circ\text{C}$			10 500	μA
$I_{D(on)^2}$	On-State Drain Current	$V_{DS} = 15\text{V}$ $V_{GS} = 10\text{V}$	1.5	1.8		A
$R_{DS(on)^2}$	Drain – Source On Resistance	$V_{GS} = 5\text{V}$ $I_D = 0.3\text{A}$ $V_{GS} = 10\text{V}$ $I_D = 1.0\text{A}$		1.8 1.3	5 2	Ω
$V_{DS(on)^2}$	Drain – Source On Voltage	$V_{GS} = 5\text{V}$ $I_D = 0.3\text{A}$ $V_{GS} = 10\text{V}$ $I_D = 1.0\text{A}$		0.54 1.3	1.5 2	V

DYNAMIC CHARACTERISTICS

$R_{DS(on)}$	Small Signal Drain – Source On Resistance	$V_{GS} = 10\text{V}$ $I_D = 1.0\text{A}$ $f = 1.0\text{KHz}$		1.3	2	Ω
t_{off}	Turn-On Time	$V_{DD} = 25\text{V}$ $V_{GEN} = 10\text{V}$ $R_L = 23\Omega$ $R_G = 25\Omega$ $I_D = 1.0\text{A}$		8	10	ns
t_{on}	Turn-Off Time			9	10	
g_{FS}^2	Forward Transconductance	$V_{DS} = 10\text{V}$ $I_D = 0.5\text{A}$	170	350		ms
C_{iss}	Input Capacitance	$V_{DS} = 24\text{V}$ $V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$		35	50	pF
C_{oss}	Output Capacitance			28	40	
C_{rss}	Reverse Transfer Capacitance			2	10	

² Pulse Test $t_p \leq 380 \mu\text{s}$, $\delta \geq 2\%$

